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Draft Standards Determination Document
Morgan Hill Grazing Allotment

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DRAFT STANDARDS DETERMINATION DOCUMENT
Morgan Hill Allotment

Introduction

The Northeastern Great Basin Area Resource Advisory Council (RAC) developed the Standards and Guidelines for Nevada's Northeastern Great Basin Area in 1997. Standards and guidelines are likened to objectives for healthy and functioning watersheds, native plant communities, and rangelands. Standards are expressions of physical and biological conditions required for sustaining rangelands for multiple uses. Guidelines point to management actions related to livestock grazing for achieving the standards. This Standards Determination Document evaluates and assesses livestock grazing management achievement of the Standards and conformance with the Guidelines for the Nevada's Northeastern Great Basin Area for the Morgan Hill Allotment in the Elko District. This document assesses the level of attainment for Standards 1 (Upland sites), Standard 2 (Riparian sites), Standard 3 (Wildlife Habitat), and Standard 4 (Cultural Resources). This allotment does not contain any Wild Horse and Burro Herd Management Areas, and as such does not address the Wild Horse and Burro Standards and Guidelines or the Off Highway Vehicle Administrative Guidelines.

Allotment Description

The Morgan Hill Allotment lies in central Elko County, approximately twenty-two miles northeast of Elko, Nevada. Map 1 displays the location of this allotment. The allotment is bordered on the west by the Halleck FFR Allotment and the North Fork of the Humboldt River, on the North by the Stag Mountain Allotment, on the east by the Deeth Allotment, and on the south by Interstate 80. Topography is benches above the floodplain of the Humboldt River at the south end transitioning to rolling hills of the southernmost extent of the Jarbidge Mountains at the north end. Elevations range from 5,275 feet along Interstate 80 to 6,816 feet at the top of Peko Peak near the north end.

There are no pasture fences within the allotment. The River Ranch housing subdivision occupies several private land sections at the south end, and residential and/or industrial development has occurred on other private parcels throughout the allotment. Some of these private parcels are fenced. Livestock water in the allotment is provided by several wells along the eastern boundary, two water gaps into the North Fork of the Humboldt River on private land on the western boundary, and several small reservoirs impounding water in ephemeral drainages in the hills at the north end.

Vegetation in the Morgan Hill Allotment is primarily sagebrush steppe and is dominated by big sagebrush, native perennial bunchgrasses, and exotic invasive grasses and forbs. Multiple recent fires have burned within the allotment, including the 1984 Winter Fire; the 1985 Morgan, Smith and Halleck Fires; and the 2006 Gopher Fire (66% of the allotment has burned since 1984, some of this multiple times).

Wildlife Habitat and Species

The allotment is classified by the NDOW in its entirety as pronghorn crucial winter range, mule deer crucial winter habitat at higher elevations, and as low-density elk use throughout.

Most (91%) of the allotment is designated as Greater Sage-Grouse General Habitat Management Area (GHMA) habitat with a smaller proportion (9%) of Other Habitat Management Area (OHMA). No active leks are located within four miles of the allotment boundary, however a single lek of unknown status is located 3.3 miles east of the allotment.

The allotment provides habitat for other wildlife including coyotes (*Canis latrans*), rabbits (*Lepus* spp. and *Sylvilagus* spp.), badgers (*Taxidea taxus*), bobcats (*Lynx rufus*), sagebrush obligates such as Sagebrush Sparrow (*Artemisiospiza nevadensis*) and Sage Thrasher (*Oreoscoptes montanus*), and numerous other small mammals, reptiles, and invertebrates. Several species of migratory birds occur within the allotment either as breeding residents or migrants.

Grazing History

The Morgan Hill Allotment was historically part of the North Fork Range Unit. A range line and allotment agreement signed in 1966 carved this and other allotments out of the range unit. The agreement reserved the majority of the apportioned Federal range preference to a cattle operation, with the balance granted to a sheep operator that trailed bands of sheep through the allotment while in transit to and from summer sheep permits on the Humboldt National Forest in the Jarbidge Mountains to the north. A land exchange completed in 1991 added to the public land within the allotment, slightly boosting the permitted use in both the sheep and cattle grazing permits.

A summary of the public and private acres, together with permittees and permitted use, are shown of Tables 1 and 2.

Table 1. Approximate public and private acres.

Allotment Name	Public Acres	Private	Total
Morgan Hill	13,666	15,060	28,726

Table 2. Summary of animal unit months (AUMs), season of use, and kind of livestock.

Permittee	Pasture	Grazing Preference (AUMs)	Season of Use	Percent Public Land	Kind of Livestock
Wahoo Ranch	--	1171	4/1-10/31	100	Cows
Eade, John W. & Jae E.	--	98	11/1-2/28	100	Sheep

Monitoring

BLM Resource Management Plans rank grazing allotments into I (Improve), M (Maintain), or C (Custodial) status, with implementation and future planning efforts prioritized in "I" and "M" category allotments. The Wells Resource Management Plan (BLM, 1985) placed the Morgan Hill Allotment on the list of "C" category allotments, and as such BLM did not prioritize the allotment for substantial monitoring efforts.

BLM has the following data available to conduct the evaluation:

1) The 1984 Elko County Soil Survey (Central Part-NV767), along with 2012 descriptions of the upper soil layers at certain monitoring sites,

2) Ecological site descriptions of the various kinds of potential native vegetation communities applicable to the area, and associated reference sheets.

3) Monitoring data collected at two key areas as follows:

a. Morgan Hill 01: Key area established as GOWK-01 in 2007 to assess success of fire rehabilitation efforts on the Gopher Fire. Data collected includes (1) Vegetative cover, interpreting indicators of rangeland health, and observations relating to soil stability and hydrologic function collected in 2012, (2) Annual vegetation production studies collected in 2014, (3) Key forage plant method utilization data collected in 2015, and (4) Density board data to estimate horizontal cover when assessing big game habitat quality.

b. Morgan Hill 02: Key area established at a randomized point in 2012. Data collected includes vegetative cover, interpreting indicators of rangeland health, and observations relating to soil stability and hydrologic function collected in 2012.

4) Photographs taken at the key area monitoring sites between 2007 and 2015,

5) Actual livestock use reports,

6) Utilization and use pattern maps

7) Lentic Proper Functioning Condition (PFC) assessments.

8) Annual precipitation data between 1985 through 2014, and

9) The knowledge gained through the professional education and experiences of our resource specialists including reviews of literature on the subject and consultation with other specialists.

All of this information is discussed in the Draft Determinations section and/or presented in the Appendices to this document.

DRAFT DETERMINATIONS

Standard 1. Upland Sites

Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

As indicated by:

-Indicators are canopy and ground cover, including litter, live vegetation and rock, appropriate to the potential of the site.

Guidelines:

1.1 Livestock grazing management is appropriate when in combination with other multiple uses they maintain or promote upland vegetation and other organisms and provide for infiltration and permeability rates, soil moisture storage, and soil stability appropriate to the ecological site within management units.
1.2 When livestock grazing management alone is not likely to restore areas of low infiltration or permeability, land management treatments should be designed and implemented where appropriate.
1.3 Livestock grazing management is adequate when significant progress is being made toward this standard.

Draft Determination

Standard 1 is met for the Morgan Hill Allotment except for the live vegetation component of the standard. Current livestock grazing is in conformance with the guidelines.

Rationale

The valley of the Humboldt River in which the Morgan Hill Allotment lies has been intensively utilized by Europeans since at least the 1840s and the Native American cultures for at least 10,000 years prior to that. Emigrant trails, wagon roads, two railroads, highways, and today's Interstate 80 have all used the river valley, resulting in an intensive disturbance history on the land now contained within the Morgan Hill Allotment. These lowlands along the valley have also been subjected to heavy livestock grazing pressures, especially in the time period extending from roughly the late 1870s through the 1960s, when fences, establishment of individual grazing allotments, and introduction of grazing systems would have limited both numbers and seasons of use in the allotment.

The Interpreting Indicators of Rangeland Health ratings show None to Slight departures from expected conditions for soil stability and infiltration factors (see Appendix 3, Tables 5 and 6). Both monitoring locations show litter amounts above and bare ground coverage below expected conditions, with the departures noted as being extreme at the key area representing the sites burned in 2006.

Biotic integrity is the one Indicator for this standard showing the greatest departure from expected conditions. Specific observations at each key area are laid out below. Line point intercept, annual production, species richness (species present in the area), and other data used to reach the conclusions are presented in Appendices 3 and 4.

Morgan Hill 01 (GOWK-01)

As noted, this site burned in the 2006 Gopher Fire, which removed all shrubs from the site (see Figure 1). Post-fire aerial seedings applied to the burned area included forage Kochia, Wyoming big sagebrush, and western yarrow. The disturbance history of the site, coupled with its location on a south-facing slope above the Humboldt River, proximity to water, and the effects of the fire, has combined to allow for a substantial presence of invasive annual grasses and forbs. This has also resulted in substantially higher vegetative cover and lower bare ground values than would be expected in this range site, as detailed in Table 5 below. The 2014 production data did record the presence of several desirable forb and grass species not observed as being in the area in the 2012 species richness report, indicating some continued recovery from the fire.

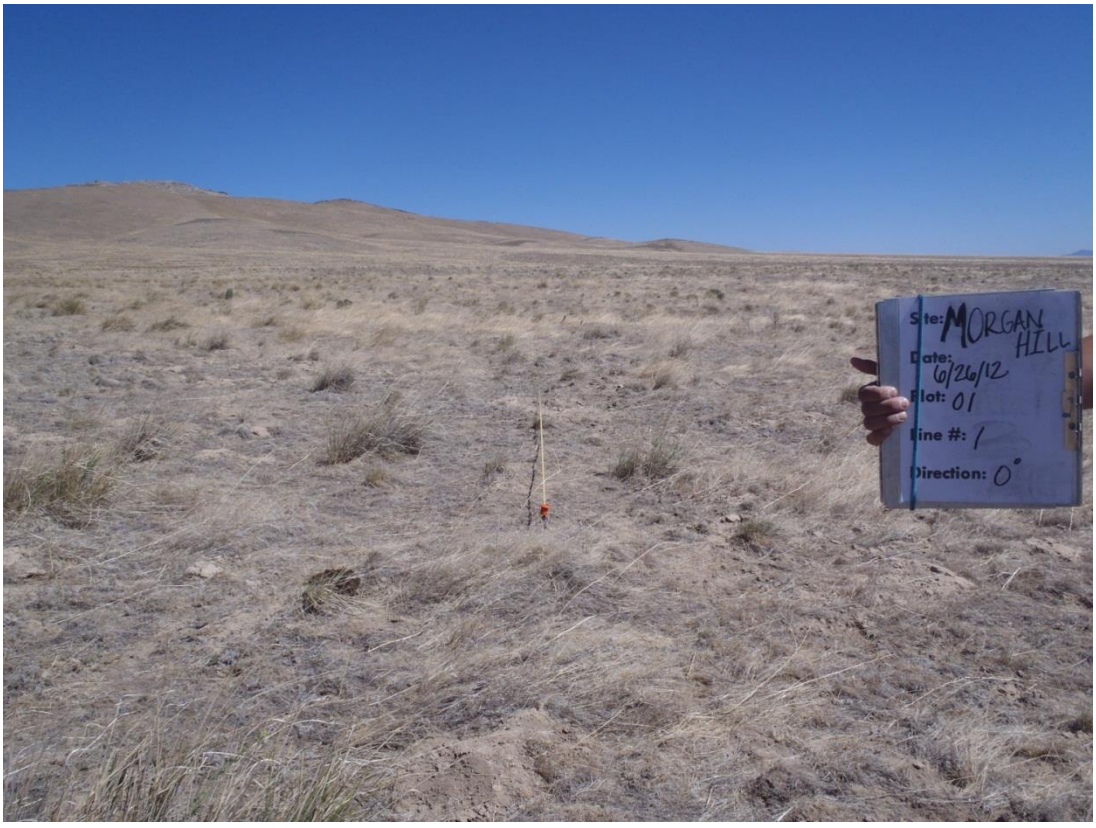


Figure 1. Key area Morgan Hill 01 showing the area burned by the Gopher fire in 2006. This photograph was taken on June 26, 2012.

Figure 2. Key area Morgan Hill 01 on May 25, 2014.

Morgan Hill 02

As noted, this key area has not recently burned and lies on a west facing slope on a generally southwest facing aspect. The site's location on the north side of ridgeline away from the Humboldt River, farther distance from water, and at a slightly higher elevation translates into the presence of a more intact plant community than likely pre-fire conditions at Morgan Hill 01. Large statured native perennial bunchgrasses are common throughout the transect area, but were not recorded in substantial numbers in the 2012 data collection; it appears there may have been some species misidentification, likely due to the poor growing season in 2012, that caused the prevalence of Sandberg's bluegrass to be overstated and the larger statured grasses to be understated in the collected data. The site does have a very minor and scattered annual grass component, almost all of which lies underneath existing sagebrush plants. On the whole, recorded litter amounts are above and bare ground below expected conditions for this range site, indicating sufficient cover exists to protect the soils at this site.

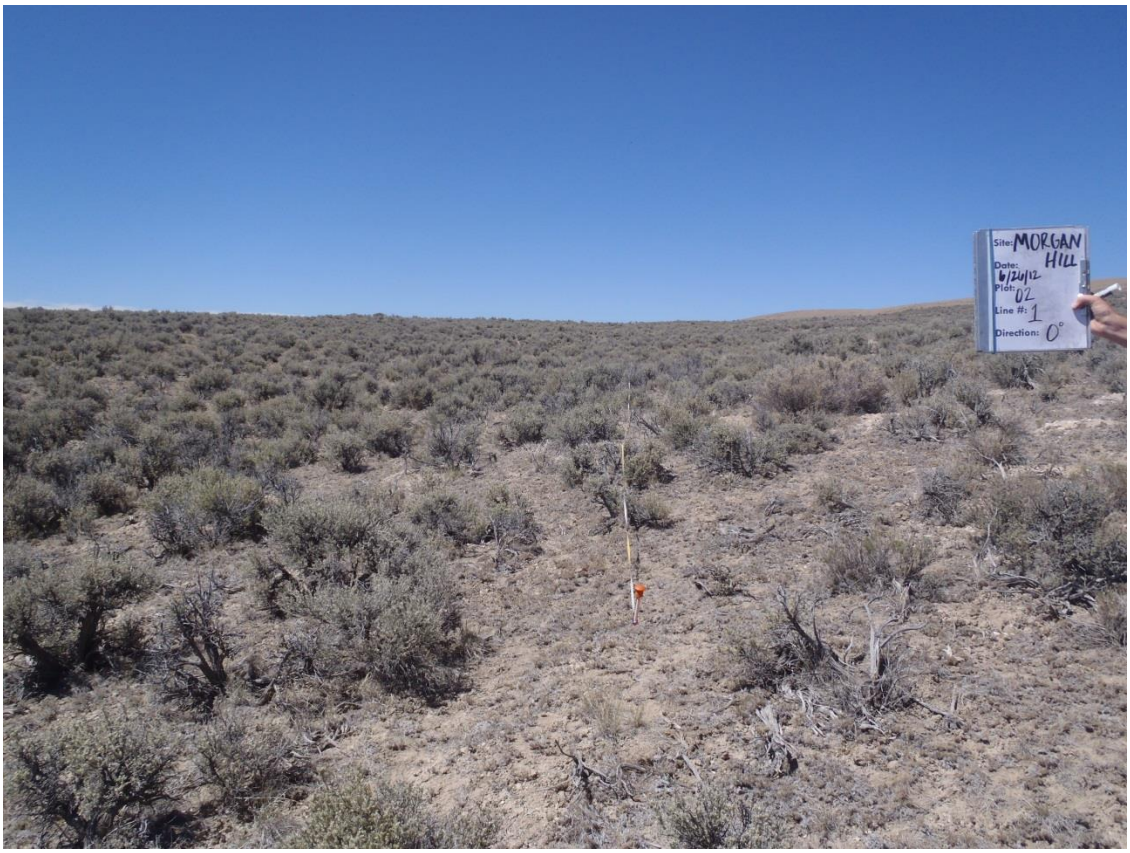


Figure 3: Key Area Morgan Hill 02**,** 6/26/2012

Figure 4: An example of the prevalence of large statured bunchgrasses (primarily Thurber's needlegrass and Indian ricegrass) in the immediate vicinity of Morgan Hill 02 on 8/27/2015.

Figure 5: Area burned by 2006 Gopher Fire in the general vicinity of Morgan Hill 02, showing the general prevalence of large statured grasses and low occurrence of cheatgrass and other exotic invasive plants on this part of the allotment. 8/27/2015.

Standard 2. Riparian and Wetland Sites

Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

As indicated by:

- Stream side riparian areas consist of adequate vegetation, large woody debris, or rock to dissipate stream energy associated with high water flows. Elements indicating proper functioning condition such as avoiding accelerating erosion, capturing sediment, and providing for groundwater recharge and release are determined by the following measurements as appropriate to the site characteristics:

  Width/Depth ratio; Channel roughness; Sinuosity of stream channel; Bank stability; Vegetative cover (amount, spacing, life form); and Other cover (large woody debris, rock).

- Natural springs, seeps, and marsh areas consist of adequate vegetation to facilitate water retention, filtering, and release as indicated by plant species and cover appropriate to the site characteristics.
- Chemical, physical and biological water constituents are not exceeding the state water quality standards.

Guidelines:

2.1 Livestock grazing management will maintain or promote sufficient vegetation cover, large woody debris, or rock to achieve proper functioning condition in riparian and wetland areas. Supporting the processes of energy dissipation, sediment capture, groundwater recharge, and stream bank stability will thus promote stream channel morphology (e.g., width/depth ratio, channel roughness, and sinuosity) appropriate to climate, landform, gradient, and erosional history.

2.2 Where livestock grazing management is not likely to restore riparian and wetland sites, land management treatments should be designed and implemented where appropriate to the site.

2.3 Livestock grazing management will maintain, restore, or enhance water quality and ensure the attainment of water quality that meets or exceeds state standards.

2.4 Livestock grazing management is adequate when significant progress is being made toward this standard.

Draft Determination

Standard 2 is met for the Morgan Hill Allotment.

Rationale

Water resources on the Morgan Hill Allotment include numerous ephemeral streams, reservoirs, and one spring. This one spring known as “Warm Spring” is the only natural perennial water source within the allotment. It supports a riparian area and has been evaluated using techniques described in Prichard, et al 1998. This riparian condition assessment is used to determine achievement of the standard and guideline above.

A Proper Functioning Condition Assessment (PFC) is a qualitative assessment of riparian areas based on quantitative science. The methodology evaluates the functionality of riparian areas based on hydrological, vegetation, and soils/erosional factors, within the context of the geologic setting and the potential of the area. Prichard et al. (1998) presented the following definition for streams: "A riparian-wetland area is considered to be in proper functioning condition when adequate vegetation, landform, or large woody debris is present to: dissipate stream energy associated with high waterflow, thereby reducing erosion and improving water quality; filter sediment, capture bedload, and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize streambanks against cutting action; develop diverse ponding and channel characteristics *to provide* the habitat and water depth, duration, and temperature necessary for fish production, waterfowl breeding, and other uses; and support greater biodiversity."

When applied to spring and lentic areas, this definition must be adjusted to better describe these areas. Prichard et al. (1994) suggests the following definition break down: "Lentic riparian-wetland areas are functioning properly when adequate vegetation, landform, or debris is present to: dissipate energies associated with wind action, wave action, and overland flow from adjacent sites, thereby reducing erosion and improving water quality; filter sediment and aid floodplain development; improve flood-water retention and ground-water recharge; develop root masses that stabilize islands and shoreline features against cutting action; restrict water percolation; develop diverse ponding characteristics to provide the habitat and water depth, duration, and temperature necessary for fish production, waterbird breeding, and other uses; and support greater biodiversity"

PFC assessments result in ratings of riparian area functionality on a continuum from Non Functional (NF) through Functioning At Risk (FAR) to Proper Functioning Condition (PFC). Ratings of Functioning At Risk are further classified into downward trend (FARD), no apparent trend (FARNA), Static (FARS) or upward trend (FARU).

Warm Springs is an uncommonly high flowing spring which supports a variety of riparian resources. The spring flows about 80 gallons per minute which is a very high flow for a spring in Northeastern Nevada since most flow less than one gallon per minute. Warm Spring supports about one acre of herbaceous riparian vegetation before flowing onto private ground. The spring is sourced by regional groundwater as evidenced by its water quality characteristics. Water temperature was 64° F, pH was 9.0, and electrical conductivity (EC) was 453 microsiemens per cm. The higher than average EC indicates the water is slightly salty, but still within standards for drinking water. These characteristics suggest the spring should have steady flow and is a dependable water resource. The spring supports aquatic and terrestrial wildlife including speckled dace, crustaceans, coyotes, and waterfowl.

The BLM assessed the condition of Warm Spring in 2004 and 2015. On both occasions the BLM interdisciplinary team found the riparian area to be in properly functioning condition. Utilization of riparian vegetation was low in 2004, and non-existent in 2015. Riparian plants are vigorous resulting in good soil and hydrologic stability. Heavy use in the past may have resulted

in lateral shrinkage and channelization of the riparian area but there is no evidence of recent drying or lateral contraction.

Figure 6: Morgan Hill – Warm Spring 2004

Figure 7: Morgan Hill – Warm Spring 2015

Standard 3. Habitat

Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

As indicated by:

- Vegetation composition (relative abundance of species);
- Vegetation structure (life forms, cover, heights, or age classes)
- Vegetation distribution (patchiness, corridors);
- Vegetation productivity; and
- Vegetation nutritional value.

Guidelines:

3.1 Livestock grazing management will promote the conservation, restoration and maintenance of habitat for threatened and endangered species, and other special status species as may be appropriate.

3.2 Livestock grazing intensity, frequency, season of use and distribution should provide for growth and reproduction of those plant species needed to reach long-term land use plan objectives. Measurements of ecological condition and trend/utilization will be in accordance with techniques identified in the *Nevada Rangeland Monitoring Handbook.*

3.3 Livestock grazing management should be planned and implemented to allow for integrated use by domestic livestock, wildlife, and wild horses and burros consistent with land use plan objectives.
3.4 Where livestock grazing is not likely to achieve habitat objectives, land treatments may be designed and implemented as appropriate.
3.5 When native plant species adapted to the site are available in sufficient quantities, and it is economically and biologically feasible to establish or increase them to meet management objectives, they will be emphasized over non-native species.
3.6 Livestock grazing management is adequate when significant progress is being made toward this Standard.

Draft Determination
The Standard is not met.

Rationale
Sixty-six percent of the allotment has burned since 1984, some areas multiple times. Observations throughout the 2006 Gopher Fire indicated that cheatgrass distribution was patchy but present throughout much of the burned area, sometimes at high concentrations, particularly on warmer and drier sites such as south-facing slopes. Most of this burned area is also lacking appropriate shrub cover valuable to Greater Sage-Grouse, big game and other wildlife.

Data was collected at two, permanently established monitoring sites in 2012, but neither site was located in the dominant ecological site (025XY019NV – ARTRW/ACTH7-PSSPS) within the allotment. At the unburned monitoring site data indicated an overabundance of shrubs and paucity of large-statured perennial grasses compared to the site's potential. Utilization recorded after livestock grazing (8/2015) was heavy (78%) in the vicinity of MH-01 and light (35%) elsewhere in the burned area. It is unknown if progress is being made toward the Standard because monitoring data were collected only once.

Key Areas Summary

Key Area MH-01
This key area is located in a big sagebrush ecological site designation (R025XY014NV) consisting of about 65% grasses (primarily bluebunch wheatgrass and Thurber's needlegrass), 10% forbs and 25% shrubs at potential. However, the vegetation community here reflected the effects of the recent wildfire, containing a substantial invasive species component, including cheatgrass and tumble mustard. While fire is a historic and necessary component of healthy sagebrush ecosystems in the Great Basin, the oft-associated increase in cheatgrass and other invasive species is not. Invasive plants provide little value for wildlife, and cheatgrass, especially, is associated with a positive feedback loop resulting in more frequent, intense and larger wildfires, often resulting in type conversion to annual grasslands on less resistant and resilient ecological sites. Having burned in 1985 and again in 2006, cheatgrass production (34% by dry weight) and cover values (28% total cover) indicated that the habitat represented by this monitoring site does not exhibit a healthy, productive and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Given this

combination of factors, the habitat represented by this monitoring site does not meet the Standard for sage-grouse and other sagebrush-obligate or -associated species.

Key Area MH-02
This key area is located in an unburned black sagebrush ecological site (024XY030NV – ARNO4/PSSPS-ACTH7). However, monitoring data indicate the site is dominated by Wyoming big sagebrush, indicating that the actual site designation may be an associated or competing site within the dominant ecological site. The most likely of these associated sites is 024XY005NV (ARTRW/ACTH7), dominated by Thurber's needlegrass and Wyoming big sagebrush. Regardless of actual site designation, the desired quantity of perennial bunchgrasses (Thurber's needlegrass and bluebunch wheatgrass) capable of being produced on the site was not present. The small-statured Sandberg bluegrass was indicated to be the primary grass present in the 2012 monitoring data but a fair amount of large-statured perennial bunchgrasses were observed in 8/2015 with very little Sandberg bluegrass noted. Observations throughout the unburned sagebrush community within the allotment indicated a relatively reduced herbaceous component from that expected in a typical sagebrush community, particularly at lower elevations and on gentle slopes. Invasive species were dominant in the general vicinity of water sources and otherwise patchily distributed throughout the remainder of unburned habitat.

Selected Terrestrial Special Status Species

Greater Sage-Grouse

As a sagebrush-obligate, landscape-scale species, Greater Sage-Grouse (sage-grouse) is an appropriate "umbrella" species to represent the habitat needs of a suite of sagebrush-obligate and sagebrush-associated species, including, but not limited to Sage Thrasher, pygmy rabbit, Brewer's Sparrow (all BLM Sensitive Species), Sagebrush Sparrow and sagebrush vole. It is presumed that managing for habitat characteristics that benefit the sage-grouse will also benefit other species that fall under the sage-grouse umbrella (Rowland *et al*. 2006, Hanser and Knick 2011).

The United States Geological Survey (USGS) recently developed a habitat classification model for greater sage-grouse based in part on telemetry location data collected throughout Nevada and northeastern California from 1998 to 2013 (Coates *et al*. 2014). This model generated spatially explicit maps describing relative habitat suitability indices (HSI) for sage-grouse across the area. The authors then combined probabilistic breeding density with a non-linear probability of occurrence relative to distance to nearest lek using count data to calculate a composite space use index (SUI). The SUI was then classified into two categories of use (high and low-to-no use) and intersected with the HSI categories to prioritize habitat across the range of greater sage-grouse within Nevada and northeastern California. Habitats were prioritized and categorized as follows (BLM Instruction Memorandum NV-2015-017):

1) Preliminary Priority Habitat (PPH): Defined as the intersection between all suitable habitat (high, moderate, and low) and the 85% Space Use Index (SUI). This habitat management class is intended to incorporate all suitable habitats that have relatively high certainty of current sage-grouse occupancy (i.e., the "best of the best").

2) Preliminary General Habitat (PGH): Defined as all high quality falling outside the 85% SUI and all non-habitat falling within the 85% SUI. This was a two-part process.

High quality habitat falling outside the 85% SUI was erased by the 85% SUI, and non-habitat was clipped by the SUI. This habitat management class encompasses: (1) high-quality habitats based on environmental covariates with a lower potential for occupancy given the current distribution of sage-grouse; and (2) sage-grouse incursion into areas of low quality habitat that is potentially important for local populations (for example, corridors of non-habitat connecting higher quality habitat).

3) Mapped Habitat: Defined as moderate and low quality habitat falling outside the 85% SUI. This class represents areas with appropriate environmental conditions for sage-grouse, but that are less frequently used.

4) Non-habitat. Defined as non-suitable habitat that is present within the low-to-no use SUI. This scenario represents habitat of marginal value to sage-grouse populations.

Both monitoring sites were located in Preliminary General Habitat, most likely designated because they fell into the first management class described for PGH above.

Bats

All (14) species of bats are designated as Sensitive Species within the Elko District. Many of these species are associated with specific habitats that are particularly important for roosting or foraging, including:

- Bridges and buildings
- Natural caves, mine shafts and adits
- Cliffs, crevice and talus slopes
- Desert wash foraging habitat
- Forest and woodland foraging habitat
- Tree roosting habitat
- Water source foraging and watering habitat (Bradley *et al*. 2006)

Of these specific habitat types, the allotment contains a limited amount of cliffs and crevices, water source foraging and watering habitat. The allotment may serve as roosting and foraging habitat for bats and provides opportunities for watering along the northwestern border with the North Fork Humboldt River and at catchment ponds and livestock watering facilities when they are in operation. No systematic surveys for bats have been conducted within or near the allotment, and thus not all bat species listed in Appendix 8 - Table 2 necessarily use habitat within the allotment.

Loggerhead Shrike

Loggerhead Shrike inhabits desert scrub, sagebrush rangelands, grasslands and meadows (Wildlife Action Plan Team 2012). Shrikes often perch on poles, wires, or fence posts; appropriate hunting perches are an important part of suitable habitat. Arthropods, amphibians, small to medium-sized reptiles, small mammals and birds are primary prey (Reuven 1996). Potential nest sites within the allotment include shrubs, with nest height averaging 0.8-1.3 meters (2.6-4.3 feet) off the ground (Wiggins 2005). The allotment serves as year-round habitat for the species and likely hosts resident breeding pairs as well as wintering individuals that breed further north. Shrike populations are dependent upon a sufficiently abundant and diverse prey base.

Preble's Shrew

Likely habitat associations for Preble's shrew (*Sorex preblei*) collected in northeastern Nevada were described as "ephemeral and perennial streams dominated by shrubs, primarily below 2,500 m [8,202 feet]in elevation" (Ports and George 1990). At Sheep Creek, approximately 40 kilometers [25 miles] west of the allotment, Ports and George (1990) collected 12 specimens "in a seasonally wet, sagebrush-dominated community." Little else is known about the ecology and distribution of Preble's shrew in Nevada or its specific habitat needs, although its' diet is likely similar to that of other shrews (insects and other small invertebrates; NatureServe 2008). Given the brief description of habitat associations of Preble's shrews in northeastern Nevada, it is unlikely that the species occurs within the allotment.

Mattoni's blue butterfly

The species is dependent upon slender buckwheat (*Eriogonum microthecum laxiflorum*) as a host plant, which is fairly widespread and grows in mountain habitats from about 1,500-3,200 meters [5,000-10,500 feet]. Mattoni's blue is known in Nevada from the Pequop Range, Charleston Reservoir and the west fork of Beaver Creek (Shields 1975). Because its host plant is fairly widespread Mattoni's blue may be more common than is currently known. Slender buckwheat may occur within the allotment; therefore it is possible that Mattoni's blue could also be present. The status of Mattoni's blue is likely to mirror that of slender buckwheat, which is assumed to generally mirror that of other native forbs, within appropriate soil types.

Big Game

Data collected at monitoring sites were analyzed for mule deer (*Odocoileus hemionus*) and pronghorn (*Antilocapra americana*) habitat quality using the BLM's WILDIVE program, which calculates a vegetation diversity index based on percent composition and preference for species present at the site. This information was used along with other factors such as water distribution, vegetative production, percent foliar cover, vertical obstruction cover, disturbance or interference factors and browse condition to estimate habitat condition ratings. No determination of trend was made because data used to determine habitat ratings were collected only once.

Pronghorn

The allotment is comprised entirely of crucial winter range although much of this burned in the 2006 Gopher Fire. MH-01 (burned) was rated as 'Good' while MH-02 (unburned) was 'Fair'. Limiting factors for both sites included a skewed composition of grasses, forbs and shrubs, as well as limited vegetation height to provide cover.

Mule Deer

The allotment is comprised of 45% crucial winter and 55% limited use habitat (Appendix 7). MH-02 was located in crucial winter habitat while MH-01 was located in the limited use designation. MH-02 was rated as 'Fair' due primarily to a low species diversity index rating and low cover value (Appendix 7).

Raptors

There are no documented active nest sites within the allotment; two historic stick nests, likely belonging to Golden Eagle, were identified in 1981 (NDOW GIS Raptor Database 2015). Raptors that may use habitat within the allotment during at least some portion of the year include

Golden Eagle*, Bald Eagle*, Peregrine Falcon*, Prairie Falcon, American Kestrel, Swainson's Hawk*, Ferruginous Hawk*, Rough-legged Hawk, Red-tailed Hawk, Sharp-shinned Hawk, Cooper's Hawk, Northern Goshawk*, Short-eared Owl, Burrowing Owl*, Great Horned Owl, Barn Owl, Northern Harrier and Turkey Vulture (*BLM Sensitive Species). While not all of these species use the allotment for breeding, most of them may pass through the allotment or use portions of the allotment as foraging habitat during annual migration, or as winter habitat.

As apex predators, raptors are dependent upon a sufficiently abundant and diverse prey base to sustain their populations. Raptor prey includes small mammals (rabbits, rodents), birds, reptiles, amphibians and invertebrates. Many small mammals are vegetarians, feeding on seeds or herbaceous material, and therefore require a healthy component of grasses and forbs. The 2006 wildfire likely resulted in an increase in the distribution and abundance of grasses, potentially resulting in a concomitant increase in the potential of the allotment to sustain prey populations, and thus raptor populations.

Migratory birds

Several species of migratory birds may use habitat within the allotment during all or some portion of their annual life cycles. The Nevada Comprehensive Bird Conservation Plan (GBBO 2010) detailed Priority and Indicator bird species for specific habitat types within Nevada. Listed habitat types found within the Morgan Hill Allotment include Sagebrush and Springs. Priority and Indicator bird species likely to be found in these habitats in the allotment are detailed in Appendix 8, Table 3.

Because much of the allotment recently burned, some migratory bird species likely benefitted from temporary conversion of shrub-steppe to grasslands (e.g., Vesper Sparrow) while others have likely been negatively impacted (e.g., Brewer's Sparrow). These effects are expected to moderate as post-fire vegetation succession progresses. The widespread, yet patchy distribution of cheatgrass is unlikely to benefit any migratory bird species and contributes to habitat degradation.

Special Status Plants

A request was sent to the Nevada Natural Heritage Program for information regarding occurrence of Special Status Species within 10 km of the Mary's River Complex. The results indicated that no Special Status Plants have been documented within the Morgan Hill Allotment; however, a single Deeth buckwheat (*Eriogonum nutans* var. *glabratum*) occurrence was documented approximately 2.5 miles to the east. All Special Status Plants that could occur within the allotment are forbs (Appendix 8 - Table 1) whose distribution and abundance, if present, would reasonably be expected to reflect those of the native forb community observed at monitoring sites.

Conclusion

Because a majority (66%) of the allotment has burned within the recent past, vegetation composition has been significantly skewed from desired condition. In addition, historic livestock grazing was heavy and season-long during at least the growing and hot seasons, which is not conducive to healthy big sagebrush communities. This grazing regime likely skewed vegetation composition from potential in much of the unburned portion of the allotment, as demonstrated in

monitoring data and observations throughout the allotment. Given the skewed vegetative composition in both burned and unburned habitats within the allotment, and the presence of a patchy but well-distributed cheatgrass component, it is reasonable to conclude that the allotment does not exhibit a healthy, productive and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes.

Without annual utilization data it is difficult to determine the contribution of current livestock grazing to failing to meet the Standard. The currently authorized grazing regime, similar to the historic regime, is season-long; regular growing season rest and hot season rest are not incorporated. Chronic growing season use encourages reduction of native perennial grasses and forbs and domination by shrubs. Without regular growing season rest the important herbaceous component of the vegetation community generally declines. Because the currently authorized grazing system does not provide for this rest it has likely contributed to or maintained the reduced herbaceous component of the sagebrush community.

Standard 4. Cultural Resources

2.4 Standard 4. Cultural Resources

Land use plans will recognize cultural resources within the context of multiple-use.
Guidelines:

4.1 Rangeland management plans will consider listings of known sites that are National Register eligible or considered to be of cultural significance and new eligible sites as they become known.

4.2 Wild horse and burro herd management will be designed to avoid or mitigate damage to significant cultural resources.

2.4.1 Draft determinations

After reviewing all information, it is determined that these standards for rangeland health are being met and livestock grazing management is considered to be in conformance with the guidelines. As there are no wild horses or burros in the allotment, there are no management issues relating to National Register eligible sites or significant cultural resources.

2.4.2 Rationale

In order to comply with the National Historic Preservation Act (NHPA) of 1966, as amended, the BLM in consultation with the Nevada State Historic Preservation Office (SHPO) must consider the effects on historic properties for all federal undertakings requiring permits, including grazing permit renewals.

Based on the evaluation of existing information pertaining to range improvements and grazing, cultural resources are being recognized within the context of multiple-use management in the Morgan Hill Allotment.

Existing data show that eight cultural resource inventories have been conducted within the Morgan Hill Allotment (plus three inventories just outside the allotment boundaries). The inventories covered a total of 11,751 acres, 2,427 acres within (about 18 percent of the allotment), and 9,324 acres just outside the allotment. The inventories produced a total of 48 cultural resource sites, predominately prehistoric lithic scatters, and historic-era refuse dumps. Of the 48 sites, seven sites were determined eligible for inclusion in the NRHP, and thus considered historic properties. However, all seven historic properties were mitigated as part of a land exchange project, and as a result, there are currently no known historic properties in the allotment.

Because some of the cultural resources in the allotment were recorded 30 to 35 years ago, site condition assessments were sometimes lacking or provided minimal information. At the same time, as many of the sites were encountered during linear surveys (seismic lines, fence lines and pipelines), and the one large block inventory was conducted away from major water sources (perennial streams and springs), any potential impacts to existing sites from livestock grazing are generally considered to be minimal to moderate.

In an effort to gain additional information regarding how cultural resources are, or are not being impacted by livestock grazing, a targeted inventory of five high-potential areas for cultural resources and livestock use will be conducted within the allotment in the near future.

Based on the above factors and conditions, and considering that (1) there are currently no known historic properties within the allotment being negatively impacted by general livestock grazing, and that (2) potential adverse effects to cultural resources encountered in the future will be avoided, minimized, or mitigated prior to ground-disturbing projects in accordance with the State Protocol, the BLM has determined that the standard is currently being met.

Appendix 1

Multiple Use Objectives

STANDARDS FOR RANGELAND HEALTH FOR THE NORTHEASTERN GREAT BASIN AREA OF NEVADA (1997)

1. **Upland Sites:**
   Upland soils exhibit infiltration and permeability rates that are appropriate to soil type, climate and land form.

2. **Riparian and Wetland Sites:**
   Riparian and wetland areas exhibit a properly functioning condition and achieve state water quality criteria.

3. **Habitat:**
   Habitats exhibit a healthy, productive, and diverse population of native and/or desirable plant species, appropriate to the site characteristics, to provide suitable feed, water, cover and living space for animal species and maintain ecological processes. Habitat conditions meet the life cycle requirements of threatened and endangered species.

4. **Cultural Resources:**
   Land use plans will recognize cultural resources within the context of multiple use.

GENERAL LAND USE PLAN (LUP) OBJECTIVES (1985)

Livestock Grazing:

To provide for livestock grazing consistent with other resource uses resulting in an increase in 4912 AUMS from three to five year average licensed use of 288,934 AUMS to a level of 293,846 (for the Wells Resource Area). Range improvements will be provided primarily in "I" category allotments.

Terrestrial Wildlife Habitat:

1. To conserve and/or enhance wildlife habitat to the maximum extent possible.

2. Eliminate all of the fencing hazards in crucial big game habitat, most of the fencing hazards in non-crucial big game habitat.

3. Eliminate all of the high and medium priority terrestrial riparian habitat conflicts in coordination with other resource uses.

4. Manage public lands in the Wells Resource Area on a sustained yield basis to support elk populations at a level consistent with other resource needs, while minimizing impacts to adjacent private and public land resources.

Riparian/Stream Habitat:

1. Improve high and medium priority riparian/stream habitat to at least good condition.

2. Prevent undue degradation of all riparian/stream habitat due to other uses.

RANGELAND PROGRAM SUMMARY (RPS) OBJECTIVES

Range

1. Provide forage to sustain 1,223 AUMs for livestock grazing.

2. Manage livestock to maintain present ecological status and trend.

3. Incorporate as a pasture of the Deeth AMP.

Wildlife

1. Facilitate big game movements by fence modification (4.0 miles).

Appendix 2

Precipitation

BLM derived precipitation data and climatic adjustment factors (CAF) from data developed through the Parameter-elevation Regressions on Independent Slopes Model (PRISM) climate mapping system. PRISM maintains a new website at http://prism.oregonstate.edu/ (accessed December 16, 2014); BLM used precipitation data from the PRISM Data Explorer located on the old PRISM website (http://oldprism.nacse.org/) to compile precipitation information for the Morgan Hill Allotment. Methods used by the PRISM model are described in Daly, et. al. (2008), located at http://prism.oregonstate.edu/documents/Daly2008_PhysiographicMapping_IntJnlClim.pdf accessed January 13, 2014. The 30-year Median Crop Year Precipitation for the Morgan Hills Allotment from 1984-2013 as per the PRISM model amounts to 11.69 inches.

The Climatic Adjustment Factor (CAF) is calculated from methodologies described in Sneva and Britton (1983). CAF is derived from Crop Year precipitation, which is measured from September of the previous calendar year through the following June. This is the precipitation which most affects plant growth. CAF can be used to normalize carrying capacity and vegetation production to what would be expected during a median precipitation year.
See Table 3 for precipitation totals, crop year precipitation, and climatic adjustment factors.

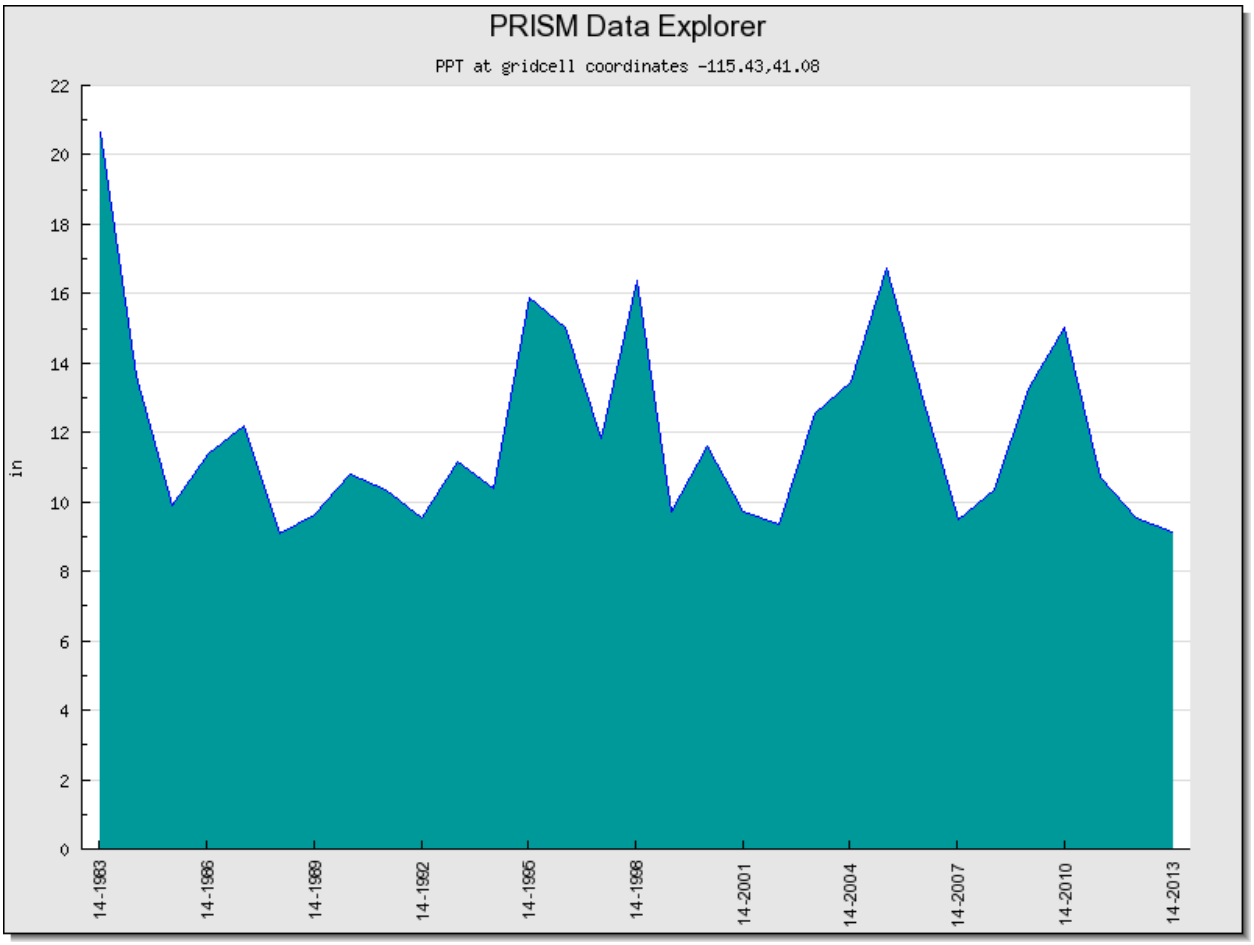


TABLE 3. Total Annual Precipitation, Crop Year Precipitation, and Climatic Adjustment Factors (CAF), Derived from Precipitation Data are As Follows:

Calendar Year	Total Annual Precip.	Crop Year	Crop Year Precip.	CAF[1]
1984	13.63	1983 - 1984	16.83	1.84
1985	9.90	1984 - 1985	8.67	0.83
1986	11.38	1985 - 1986	12.91	1.34
1987	12.17	1986 - 1987	9.90	0.98
1988	9.09	1987 - 1988	9.09	0.88
1989	9.61	1988 - 1989	9.82	0.96
1990	10.80	1989 - 1990	10.08	1.00
1991	10.34	1990 - 1991	8.31	0.78
1992	9.53	1991 - 1992	8.37	0.79
1993	11.17	1992 - 1993	12.14	1.25
1994	10.40	1993 - 1994	8.5	0.80
1995	15.88	1994 - 1995	15.54	1.66
1996	15.02	1995 - 1996	12.04	1.23
1997	11.85	1996 - 1997	13.70	1.44
1998	16.39	1997 - 1998	14.22	1.50
1999	9.72	1998 - 1999	13.15	1.37
2000	11.62	1999 - 2000	8.64	0.83
2001	9.71	2000 - 2001	8.25	0.78
2002	9.36	2001 - 2002	10.04	0.99
2003	12.54	2002 - 2003	10.37	1.04
2004	13.44	2003 - 2004	9.56	0.94
2005	16.74	2004 - 2005	16.97	1.84
2006	12.98	2005 - 2006	13.40	1.41
2007	9.51	2006 - 2007	8.65	0.83
2008	10.36	2007 - 2008	10.21	1.01
2009	13.29	2008 - 2009	13.01	1.36
2010	15.01	2009 - 2010	10.10	1.00
2011	10.71	2010 - 2011	15.74	1.69
2012	9.52	2011 - 2012	7.22	0.66
2013	9.13	2012 - 2013	7.71	0.70

[1] The climatic adjustment factor (CAF) is used to adjust current vegetative production to that which can be expected during an average or normal crop year. This adjustment allows BLM to compare changes in production and helps to determine what changes are not attributable to precipitation fluctuations.

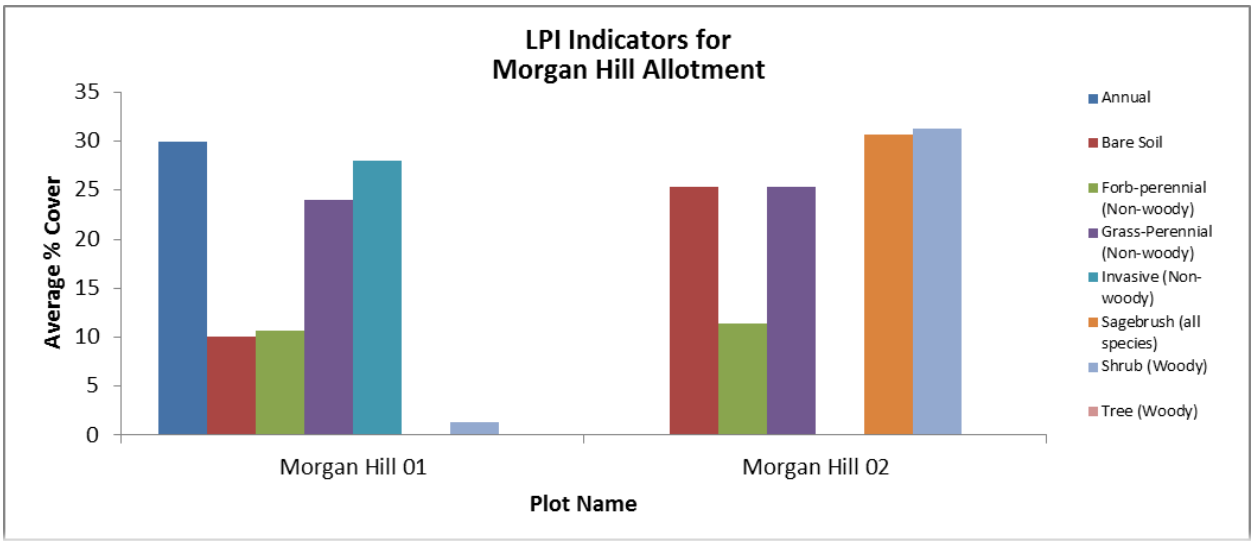
Appendix 3

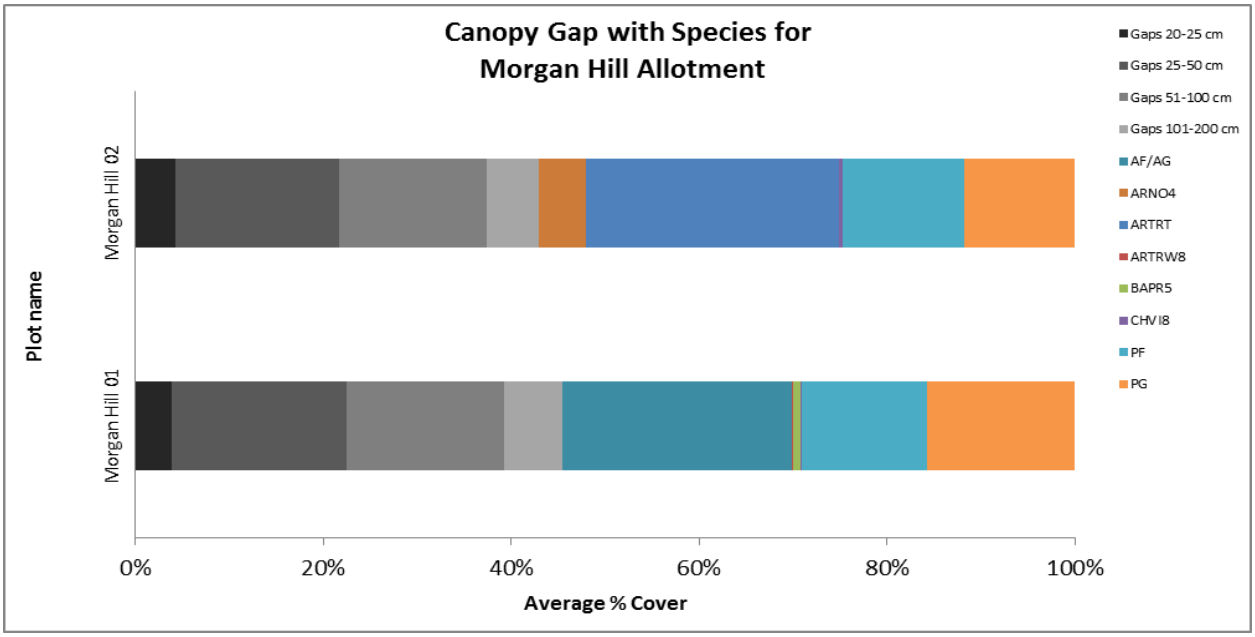
Land Health Assessment Data

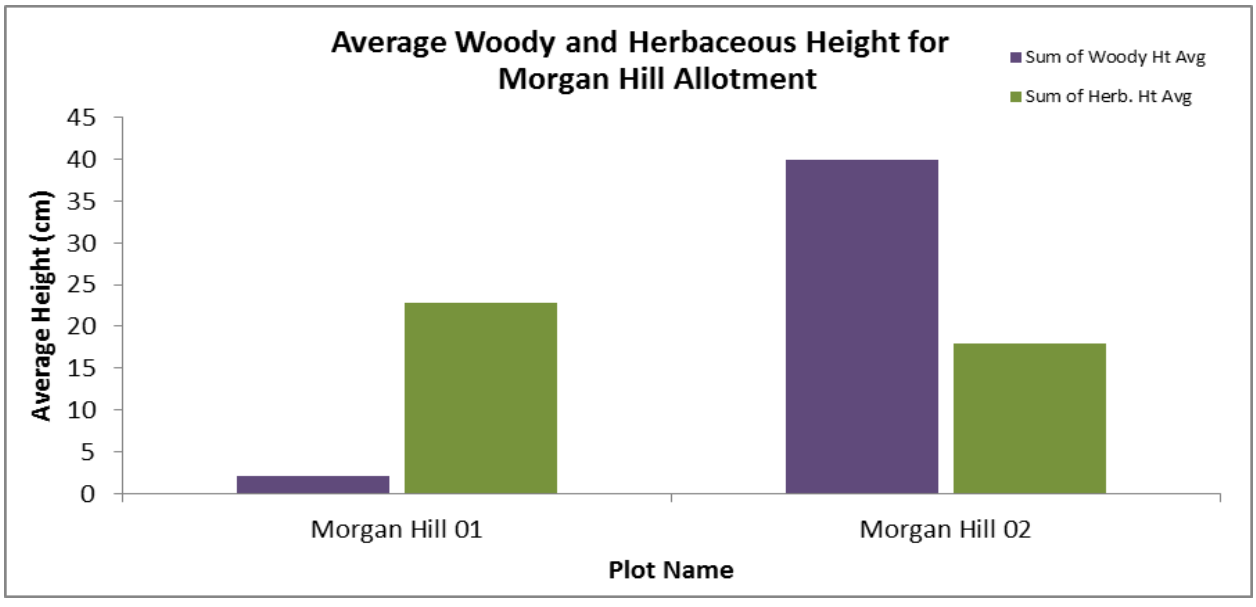
Table 4: Plots Established in 2012								
Plot ID	**Date Est.**	**Site Selection Method**	**Existing KA Name**	**Ecological Site**	**Soil Survey Area**	**Soil Map Unit**	**Easting**	**Northing**
Morgan Hill 01	6/26/12	Existing ESR plot	GOWK-01	R025XY014NV	NV767	470	632055	4549045
Morgan Hill 02	6/26/12	Create Random Point	n/a	R024XY030NV	NV767	380	628247	4547910

Table 5: Morgan Hill 01 26 June 2012		
Indicator	**Departure from Expected**	**Comments**
1. Rills	None-Slight	None
2. Water-flow Patterns	None-Slight	None
3. Pedestals and/or terracettes	None-Slight	
4. Bare ground	None-Slight	8%, Less than expected (45%)
5. Gullies	None-Slight	None
6. Wind-scoured, blowouts, and/or deposition areas	None-Slight	
7. Litter movement	None-Slight	
8. Soil surface resistance to erosion	None-Slight	overall: 3.17, Protected: 4.11, unprotected: 2.22- A little low
9. Soil surface loss or degradation	None-Slight	
10. Plant Community compositions and distribution relative to infiltration	None-Slight	Change in F/S groups not affecting infiltration
11. Compaction layer	None-Slight	
12. Functional/structural groups	Moderate	Annuals>shallowrooted bunchgrasses >deeprooted grasses>forbs (Burned in 2006).
13. Plant mortality/decadence	None-Slight	Bunchgrasses all alive
14. Litter amount	Moderate-Extreme	Total: 85.3%, Underplants: 56%, Interspaces: 29.3
15 Annual production		
16. Invasive plants	Moderate-Extreme	Cheatgrass common, Tansy mustard and (SIAL2)
17. Reproductive capability of perennial plants	None-Slight	Bunchgrasses have seedheads, sagebrush sprouting, considering drought conditions
Overall Summary Ratings		
Soil & Site Stability Rating	None-Slight	Everything Good
Hydrologic Function Rating	Slight-Moderate	Litter Amount
Biotic Integrity	Moderate	Cheatgrass common and F/S groups change. All because site burned in 2006.

Table 6: Morgan Hill 02 26 June 2012		
Indicator	**Departure from Expected**	**Comments**
1. Rills	None-Slight	No Rills
2. Water-flow Patterns	None-Slight	A few on the steeper areas and in cow trails
3. Pedestals and/or terracettes	None-Slight	rare pedestalling
4. Bare ground	None-Slight	25%, Less than expected (50%)
5. Gullies	None-Slight	Site overlaps old erosional feature.
6. Wind-scoured, blowouts, and/or deposition areas	None-Slight	
7. Litter movement	None-Slight	Some woody litter moved in one area between lines 2 and 3.
8. Soil surface resistance to erosion	None-Slight	overall: 3.22, Unprotected: 2.13, Protected: 4.1
9. Soil surface loss or degradation	None-Slight	Some disturbance from rodents.
10. Plant Community compositions and distribution relative to infiltration	None-Slight	
11. Compaction layer	None-Slight	hardpan at 13", white calcareous
12. Functional/structural groups	Slight-Moderate	shrubs>shallowrooted grasses>forbs
13. Plant mortality/decadence	None-Slight	
14. Litter amount	Slight-Moderate	Interspaces: 18%, Slightly more than expected (10%)
15 Annual production		
16. Invasive plants	Moderate	Cheatgrass scattered, growing under sagebrush
17. Reproductive capability of perennial plants	None-Slight	
• **Overall Summary Ratings**		
Soil & Site Stability Rating	None-Slight	No significant deviation
Hydrologic Function Rating	None-Slight	Litter amount not weighted heavily
Biotic Integrity	Slight-Moderate	Due to presence of cheatgrass and low number of deeprooted bunchgrasses.


LPI Indicators for
Morgan Hill Allotment
Average % Cover
35
30
25
20
15
10
5
0
Morgan Hill 01
Morgan Hill 02
Plot Name
Annual
Bare Soil
Forb-perennial (Non-woody)
Grass-Perennial (Non-woody)
Invasive (Non-woody)
Sagebrush (all species)
Shrub (Woody)
Tree (Woody)


Canopy Gap with Species for
Morgan Hill Allotment
Plot name
Morgan Hill 02
Morgan Hill 01
0%
20%
40%
60%
80%
100%
Average % Cover
Gaps 20-25 cm
Gaps 25-50 cm
Gaps 51-100 cm
Gaps 101-200 cm
AF/AG
ARNO4
ARTRT
ARTRW8
BAPR5
CHVI8
PF
PG


Average Woody and Herbaceous Height for
Morgan Hill Allotment
Average Height (cm)
45
40
35
30
25
20
15
10
5
0
Morgan Hill 01
Morgan Hill 02
Plot Name
Sum of Woody Ht Avg
Sum of Herb. Ht Avg

Line Point Intercept

Table 7: Morgan Hill 01 Line Point Intercept 26 June 2012			
Species	**First Hit % Average***	**Any Hit % Average***	**Common name**
AF01	4.00	4.67	annual forb
BRTE	24.00	28.00	cheatgrass
SIAL2	0.67	0.67	tall tumblemustard
BAPR5	1.33	1.33	forage kochia
ELEL5	4.67	5.33	squirreltail
LECI4	0.67	0.67	basin wildrye
PG03	0.67	1.33	perennial grass
PHHO	9.33	10.67	Hood's phlox
POSE	14.67	18.67	Sandberg bluegrass
*First Hit- Occurrence of species being first encountered. Any hit- All recorded encounters with species on transect.			

Table 8: Morgan Hill 02 Line Point Intercept 26 June 2012			
Species	**First Hit % Average**	**Any Hit % Average**	**Common name**
ACHY	0.7	0.7	Indian ricegrass
ALLIU	--	0.7	onion
ARNO4	4.0	4.7	black sagebrush
ARTRT	25.3	26.0	big sagebrush
CHVI8	0.7	0.7	Douglas rabbitbrush
CRAC2	0.7	1.3	tapertip hawksbeard
ELEL5	1.3	3.3	squirreltail
PHHO	7.3	9.3	Hood's phlox
POSE	12.0	21.3	Sandberg bluegrass
*First Hit- Occurrence of species being first encountered. Any hit- All recorded encounters with species on transect.			

Table 9: Morgan Hill 01 Species Richness 26 June 2012		
ACHY	*Achnatherum hymenoides*	Non-woody Graminoid
AF01		Non-woody Forb/herb
ARTRW8	*Artemisia tridentata ssp. wyomingensis*	Woody Shrub
BAPR5	*Bassia prostrata*	Woody Shrub
BRTE	*Bromus tectorum*	Non-woody Graminoid
CHVI8	*Chrysothamnus viscidiflorus*	Woody Shrub
ELEL5	*Elymus elymoides*	Non-woody Graminoid
LECI4	*Leymus cinereus*	Non-woody Graminoid
LUPIN	*Lupinus*	
PG03		Non-woody Graminoid
PHHO	*Phlox hoodii*	Non-woody Forb/herb
POSE	*Poa secunda*	Non-woody Graminoid
PSSP6	*Pseudoroegneria spicata*	Non-woody Graminoid
SIAL2	*Sisymbrium altissimum*	Non-woody Forb/herb

Table 10: Morgan Hill 02 Species Richness 26 June 2012		
ACHY	*Achnatherum hymenoides*	Non-woody Graminoid
ALLIU	*Allium*	Non-woody Forb/herb
ARNO4	*Artemisia nova*	Woody Shrub
ARTRT	*Artemisia tridentata ssp. tridentata*	Woody Shrub
BRTE	*Bromus tectorum*	Non-woody Graminoid
CACR11	*Caulanthus crassicaulis*	Non-woody Forb/herb
CHVI8	*Chrysothamnus viscidiflorus*	Woody Shrub
CRAC2	*Crepis acuminata*	Non-woody Forb/herb
DELPH	*Delphinium*	Non-woody Forb/herb
DEPI	*Descurainia pinnata*	Non-woody Forb/herb
ELEL5	*Elymus elymoides*	Non-woody Graminoid
ERIGE2	*Erigeron*	Non-woody Forb/herb
ERMI4	*Eriogonum microthecum*	Woody Shrub
LECI4	*Leymus cinereus*	Non-woody Graminoid
LETR5	*Leymus triticoides*	Non-woody Graminoid
LILE3	*Linum lewisii*	Non-woody Forb/herb
LOMAT	*Lomatium*	Non-woody Forb/herb
PHHO	*Phlox hoodii*	Non-woody Forb/herb
POSE	*Poa secunda*	Non-woody Graminoid
STAC	*Stenotus acaulis*	Non-woody Forb/herb

Appendix 4

Production Data

Table 11: Production Data: Morgan Hill 01, 25 May 2014		
Species	Total Dry Weight Production (lbs./acre)	% Composition
Grasses		
BRTE	230.3	33.7
SIHY	99.9	14.6
POSE	25.7	3.8
STCO4	11.0	1.6
ORHY	99.5	14.5
ELCI2	13.7	2.0
Total grass	**480.1**	**70.2**
Forbs		
Allium	3.7	0.5
PHLO2	44.3	6.5
COPA3	0.4	0.1
Astra	8.9	1.3
BRASS2	36.3	5.3
CRAC2	13.4	2.0
LEPID	1.0	0.1
KOCHI	87.1	12.7
DELPH	4.0	0.6
LOMAT	1.5	0.2
ORTHO	3.4	0.5
Total forb	**204.0**	**29.8**
Total	**684.1**	**100**

Appendix 5

Livestock Actual Use and Utilization

Table 12: Actual use by livestock during the evaluation period		
Year	**AUMs**	**Season of Use**
2015		
2014	380	4/11-6/2
2013	1,153*	3/20-6/19*
2012	1,170*	4/7-10/31*
2011	1079	4/1-6/15
2010	Fire Closure	Fire Closure
2009		
2008		
2007		
2006	180	4/18-6/1
2005	1,169*	4/18-6/8*
2004	401	4/1-4/30
2003	561	4/12-6/30
2002	1171	4/1-6/11
2001	1719	3/15-6/10
2000	1175	3/23-5/31
1999	1298	4/3-8/24
1998	1011	6/13-8/18
1997	1169	6/1-8/22
1996	1256	4/22-7/15
1995	1068	5/4-8/11
1994	1013	5/24-8/31
1993	1184	5/3-9/15
1992	1119	4/13-9/23
1991	1229	4/24-5/28
1990	831	5/8-7/17
1989	1305	4/30-6/17
1988	1008	6/20-1/14
Average		
*Actual use not reported or otherwise unavailable; numbers reflect billed use.		

Table 13. Percent utilization, post-livestock grazing [Key Forage Plant Method (8/25-8/27/2015)].

Key Area	Squirreltail	Indian ricegrass	Thurber's needlegrass	Bluebunch wheatgrass
MH-01	78	--	--	--
MH-02	3	18	--	--
NW aspect in burned area (UTMs: 630889, 4552664)	--	--	35	4

Appendix 6

Key to Plant Codes

Several of the foregoing appendices reference plant species by their plant symbol, consisting of a combination of the first two letters of the genus and the first two letters of the specific epithet. The naming conventions reported in this document reflect older naming methodologies: many of the scientific plant names, especially grasses, have changed. The following table shows the plant symbols used in this document, the referenced scientific name, the common name, and the currently accepted name as applicable. Source for names is generally the Nevada Plant List as prepared by the Bureau of Land Management (July 1991), supplemented by the USDA Plants database located at http://plants.usda.gov (accessed August 2015).

Table 14: Key to Plant Symbols

Plant Symbol		Scientific Name	Common Name	New Scientific Name
Grasses				
AGSP	PSSP6	*Agropyron spicatum*	bluebunch wheatgrass	*Pseudoroegneria spicata*
BRTE		*Bromus tectorum*	cheatgrass	--
ELCI2	LECI4	*Elymus cinereus*	Basin wildrye	*Leymus cinereus*
LETR5		*Leymus triticoides*	beardless wildrye	
ORHY	ACHY	*Oryzopsis hymenoides*	Indian ricegrass	*Achnatherum hymenoides*
PG03			Perennial grass	
POSE		*Poa secunda*	Sandberg bluegrass	--
PPGG		--	perennial grass	--
SIHY	ELEL5	*Sitanion hystrix*	bottlebrush squirreltail	*Elymus elymoides*
STCO4		*Stipa comata*	needle and thread grass	
Forbs				
AF01		-	annual forb	--
Allium		*Allium sp.*	onion	--
ASTRA		*Astragalus sp.*	milkvetch	--
BRASS2		*Brassica sp.*	mustard	
CACR11		*Caulanthus crassicaulis*	thickstem wild cabbage	
COPA3		*Collinsia parviflora*	maiden blue-eyed mary	--
CRAC2		*Crepis acuminata*	tapertip hawksbeard	--
DELPH		*Delphinium sp.*	larkspur	--
DEPI		*Descurainia pinnata*	western tansymustard	

ERIGE2		*Erigeron sp.*	fleabane	--
ERMI4		*Eriogonum microthecum*	slender buckwheat	--
KOCHI		*Kochia sp.*	kochia	
LEPID		*Lepidium sp.*	pepperweed	--
LILE3		*Linum lewisii*	Lewis flax	
LOMAT		*Lomatium sp.*	desert parsley	--
LUPIN		*Lupinus*	lupine	--
ORTHO		*Orthocarpus sp.*	owl clover	--
PHHO		*Phlox hoodii*	spiny phlox	--
PHLO2		*Phlox longifolia*	longleaf phox	--
SIAL2		*Sisymbrium altissimum*	tall tumblemustard	--
STAC		*Stenotus acaulis*	stemless mock goldenweed	
Shrubs/Subshrubs				
ARNO4		*Artemisia nova*	black sagebrush	
ARTRT		*Artemisia tridentata spp. tridentata*	basin big sagebrush	--
ARTRW8		*Artemisia tridentata ssp. wyomingensis*	Wyoming big sagebrush	
BAPR5		*Bassia prostrata*	forage kochia	
CHVI8		*Chrysothamnus viscidiflorus*	Douglas rabbitbrush	--

Appendix 7 – Big Game habitat ratings

MH-01
Pronghorn antelope:

Date: 8/25/2015		
Wildlife Season of Use: Crucial winter		
A. Water Availability Rating:		
Miles to Water (to 1/2 mile)	2	10
B. Vegetation Quality Rating:		
Forbs (to 0.1%):	29.8%	19
Grasses (to 0.1%):	70.2%	20
Shrubs (to 0.1%):	0.0%	0
C. Vegetation Quantity Rating:	683	10
D. Vegetation Height Rating:	9	5
Total Score:		64
Rating:		Good*
Comment: Vegetation quality from 2014 production data. Vegetation quantity from 2014 production data. Vegetation height from 2015 density board estimate.		

Good – 61-105
Fair – 31-60
Poor – 5-30

Mule deer: This area is designated a limited use area by the NDOW, therefore the site and associated habitat were not rated.

MH-02
Pronghorn antelope:

Date: 8/27/2015		
Wildlife Season of Use: Crucial winter		
A. Water Availability Rating:		
Miles to Water (to 1/2 mile)	3	8
B. Vegetation Quality Rating:		
Forbs (to 0.1%):	16.6%	13
Grasses (to 0.1%):	37.2%	16
Shrubs (to 0.1%):	46.2%	4
C. Vegetation Quantity Rating:	550	10
D. Vegetation Height Rating:	10	5
Total Score:		56
Rating:		Fair*
Vegetation quality from 2012 AIM data. Vegetation quantity from professional estimation. Vegetation height from 2015 density board.		

Good – 61-105
Fair – 31-60
Poor – 5-30

Mule Deer

Date: 8/27/2015					
Wildlife Season of Use: Crucial winter					
A. Browse Vigor Rating:					
Key Browse Species:	ARTRT				
Age Class Rating:	Satisfactory				8
Form Class Rating:	Satisfactory				8
B. Forage Quality Rating:					
Diversity Index:	0.796	Rating:	Poor	5	
Forage Quantity Adjustment:	68.00%	(Vegetative Cover)		0	
OR					
Forage Quantity Adjustment:		(lbs/ac)		0	
Total Rating:					5
C. Cover Rating:	9.80%	Rating:	Poor		5
D. Disturbance Rating:					5
E. Water Distribution Rating:					
Diversity index from 2012 line point cover data. Forage quantity from 2012 line point intercept data. Cover rating from 2015 density board data.		Subtotal:			31
		Correction Factor:			1.47
		Total Score:			46
		Rating:			Poor

Excellent – 81-100
Good – 61-80
Fair – 51-60
Poor – 10-50

Appendix 8- Wildlife Table

Table 1) Elko District BLM Special Status Species, Table 2) all animal species occurring within northeast Nevada, and Table 3) Priority and Indicator bird species identified by Great Basin Bird Observatory for the two primary habitat types found within the Morgan Hill Allotment.

Table 15. Elko District BLM Special Status Species (revised 2011). Those species known or with the potential to occur within Morgan Hill Allotment are presented in bold type.

Scientific Name	Common Name	USFWS Status[1]	NV Range[2]	BLM Criteria[3]
Amphibians				
Rana pipiens	northern leopard frog		YR	1,2
Rana luteiventris	Columbia spotted frog (including Toiyabe spotted frog subpopulation)	Candidate	YR	1,2
Birds				
Falco peregrinus	**Peregrine Falcon**		YR	
Accipiter gentilis	**Northern Goshawk**		B	1
Aquila chrysaetos	**Golden Eagle**		YR	2
Haliaeetus leucocephalus	**Bald Eagle**		YR	1
Buteo regalis	**Ferruginous Hawk**		B	1,2
Buteo swainsoni	**Swainson's Hawk**		B	1
Centrocercus urophasianus	**Greater Sage-Grouse**	Candidate	YR	1
Charadrius alexandrinus nivosus	Western Snowy Plover	T	B	1,2
Lanius ludovicianus	**Loggerhead Shrike**		YR	1
Leucosticte atrata	**Black Rosy-Finch**		YR	2
Melanerpes lewis	Lewis' Woodpecker		YR	1
Gymnorhinus cyanocephalus	Pinyon Jay		YR	
Oreoscoptes montanus	**Sage Thrasher**		B	1
Athene cunicularia hypugaea	**Western Burrowing Owl**		B	1
Fish				
Gila bicolor isolata	Independence Valley tui chub		YR	2
Gila bicolor newarkensis	Newark Valley tui chub		YR	2
Oncorhynchus clarki henshawi	**Lahontan cutthroat trout**	T	YR	1,2
Oncorhynchus mykiss gairdneri	inland Columbia Basin redband trout		YR	2

Relictus solitarius	relict dace		YR	2
Rhinichthys osculus lethoporus	Independence Valley speckled dace	E	YR	1,2
Rhinichthys osculus oligoporus	Clover Valley speckled dace	E	YR	1,2
Salvelinus confluentus	Bull trout	T	YR	1,2
Mammals				
Antrozous pallidus	**pallid bat**		YR	2
Corynorhinus townsendii	**Townsend's big-eared bat**		YR	1,2
Euderma maculatum	**spotted bat**		YR	1,2
Eptesicus fuscus	**big brown bat**		YR	2
Lasionycteris noctivagans	**silver-haired bat**		YR	2
Lasiurus cinereus	**hoary bat**		B	2
Myotis californicus	**California myotis**		YR	2
Myotis ciliolabrum	**western small-footed myotis**		YR	2
Myotis evotis	**long-eared myotis**		YR	2
Myotis lucifugus	**little brown myotis**		YR	2
Myotis thysanodes	**fringed myotis**		YR	2
Myotis yumanensis	**Yuma myotis**		YR	2
Pipistrellus hesperus	**western pipistrelle**		YR	2
Tadarida brasiliensis	**Brazilian free-tailed bat**		YR	2
Brachylagus idahoensis	**pygmy rabbit**	petitioned	YR	1
Sorex preblei	**Preble's shrew**		YR	2
Ochotona princeps	pika		YR	1,2
Reptiles				
none				
Insects				
Euphilotes pallescens mattonii	**Mattoni's blue butterfly**		YR	2
Molluscs				
Anodonta californiensis	**California floater**		YR	2
Pygulopsis humboldtensis	**Humboldt pyrg**		YR	2
Pyrgulopsis villacampae	Duckwater Warm Springs pyrg	petitioned 2009	YR	2
Pyrgulopsis vinyardi	Vinyards pyrg		YR	1,2
Tryonia clathrata	Grated tryonia	petitioned 2009	YR	1,2
Plants*				
Antennaria arcuata	**Meadow pussytoes**	Species of Concern		1, 2
Astragalus anserinus	Goose Creek milkvetch	Candidate		1, 2

Boechera falcifructa	Elko rockcress	Species of Concern	1,2
Collomia renacta	**Barren Valley collomia**	Species of Concern	1, 2
Erigeron latus	Broad fleabane	Species of Concern	1, 2
Eriogonum beatleyae	Beatley buckwheat		1
Eriogonum lewisii	**Lewis buckwheat**	Species of Concern	1
Eriogonum nutans var. *glabratum*	**Deeth buckwheat**		1
Ivesia rhypara var. *rhypara*	Grimy mousetails	Former candidate	1
Lathyrus grimesii	Grimes vetchling	Species of Concern	1,2
Lepidium davisii	**Davis pepperweed**	Species of Concern	1, 2
Leptodactylon glabrum	Owyhee prickly phlox	Species of Concern	2
Mentzelia tiehmii	**Tiehm blazingstar**		1
Penstemon idahoensis	**Idaho beardtongue**		2
Phacelia minutissima	**Least phacelia**	Species of Concern	2
Potentilla cottamii	Cottam cinquefoil	Species of Concern	1
Ranunculus triternatus	**Obscure buttercup**		1
Silene nachlingerae	Nachlinger catchfly	Species of Concern	1

[1]**Candidate**: Species for which the FWS has sufficient information on their biological status and threats to propose them as endangered or threatened under the Endangered Species Act, but for which development of a proposed listing regulation is precluded by other higher priority listing activities.
Petitioned: petitioned for listing as a Threatened or Endangered species.
T: Listed as Threatened.
E: Listed as Endangered.
Species of Concern: An informal term used to refer to species that are declining or appear to be in need of conservation.

[2]**YR**: Year-round resident
B: Breeding season resident

[3]BLM criteria for listing as a Sensitive Species:
1. There is information that a species has recently undergone, is undergoing, or is predicted to undergo a downward trend such that the viability of the species or a distinct population segment of the species is at risk across all or a significant portion of the species range, or
2. The species depends on ecological refugia or specialized or unique habitats on BLM-administered lands, and there is evidence that such areas are threatened with alteration such that the continued viability of the species in that area would be at risk (BLM 2008).

*Intensive, large-scale surveys have not been conducted for many of these plant species, but those in bold type were included as potentially occurring within the allotment if their general habitat descriptions matched those found within or near the allotment.

Table 16. Animal species that occur within northeastern Nevada.

Birds

Order: *Gaviiformes* (Diver/Swimmers)

Family: *Gaviidae* (Loons)

Common Loon	*Gavia immer*

Order: *Podicipediformes* (Flat-toed Divers)

Family: *Podicipedidae* (Grebes)

Pied-billed Grebe	*Podilymbus podiceps*
Horned Grebe	*Podiceps auritus*
Eared Grebe	*Podiceps nigricollis*
Western Grebe	*Aechmophorus occidentalis*
Clark's Grebe	*Aechmophorus clarkii*

Order: *Pelecaniformes* (Four-toed Fisheaters)

Family: *Pelecanidae* (Pelicans)

American White Pelican	*Pelecanus erythrorhynchos*

Family: *Phalacrocoracidae* (Cormorants)

Double-crested Cormorant	*Phalacrocorax auritus*

Order: *Ciconiiformes* (Long-legged Waders)

Family: *Ardeidae* (Bitterns, Herons, Egrets)

American Bittern	*Botaurus lentiginosus*
Least Bittern	*Ixobrychus exilis*
Great Blue Heron	*Ardea herodias*
Great Egret	*Ardea alba*
Snowy Egret	*Egretta thula*
Cattle Egret	*Bubulcus ibis*
Green Heron	*Butorides virescens*
Black-crowned Night Heron	*Nycticorax nycticorax*

Family: *Threskiornithidae* (Ibises)

White-faced Ibis	*Plegadis chihi*

Family: *Cathartidae* (New World Vultures)

Turkey Vulture	*Cathartes aura*
California Condor	*Gymnogyps californianus(loc.ex)*

Order: *Anseriformes* (Waterfowl)

Family: *Anatidae* (Ducks, Geese, Swans)

Greater White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Canada Goose	*Branta canadensis*
Tundra Swan	*Cygnus columbianus*
Trumpeter Swan	*Cygnus buccinator*
Wood Duck	*Aix sponsa*
Gadwall	*Anus strepera*
American Widgeon	*Anus americana*
Mallard	*Anus platyrhynchos*
Blue-winged Teal	*Anas discors*
Cinnamon Teal	*Anas cyanoptera*
Northern Shoveler	*Anas clypeata*
Northern Pintail	*Anas acuta*
Green-winged Teal	*Anas crecca*
Canvasback	*Aythya valisinaria*
Redhead	*Aythya americana*
Ring-necked Duck	*Aythya collaris*
Lesser Scaup	*Aythya affinis*
Bufflehead	*Bucephala albeola*
Common Goldeneye	*Bucephala clangula*
Barrow's Goldeneye	*Bucephala islandica*
Hooded Merganser	*Lophodytes cucullatus*
Common Merganser	*Mergus merganser*
Red-breasted Merganser	*Mergus serrator*
Ruddy Duck	*Oxyura jamaicensis*

Order: *Falconiformes* (Diurnal Flesh Eaters)

Family: *Accipitridae* (Hawks, Eagles, Osprey)

Osprey	*Pandion haliaetus*
Bald Eagle	*Haliaeetus leucocephalus*
Northern Harrier	*Circus cyaneus*
Sharp-shinned Hawk	*Accipiter striatus*
Cooper's Hawk	*Accipiter cooperii*
Northern Goshawk	*Accipiter gentilis*
Red-shouldered Hawk	*Buteo lineatus*
Broad-winged Hawk	*Buteo platypterus*
Swainson's Hawk	*Buteo swainsoni*
Red-tailed Hawk	*Buteo jamaicensis*
Ferruginous Hawk	*Buteo regalis*
Rough-legged Hawk	*Buteo lagopus*
Golden Eagle	*Aquila chrysaetos*

Family: *Falconidae* (Falcons)

American Kestrel	*Falco sparverius*
Merlin	*Falco columbarius*
Gyrfalcon	*Falco rusticolus*
American Peregrine Falcon	*Falco peregrinus*
Prairie Falcon	*Falco mexicanus*

Order: *Galliformes* (Chicken Relatives)

Family: *Phasianidae* (Grouse, Partridge)

Chukar	*Alectoris chukar*
Himalayan Snowcock	*Tetraogallus himalayensis*
Gray Partridge	*Perdix perdix*
Ruffed Grouse	*Bonasa umbellus*
Greater Sage-Grouse	*Centrocercus urophasianus*
Blue Grouse	*Dendragapus obscurus*
C. Sharp-tailed Grouse	*Tympanuchus phasianellus columbianus*
Wild Turkey	*Meleagris gallopavo*

Family: *Odontophoridae* (New World Quail)

California Quail	*Callipepla californica*
Mountain Quail	*Oreortyx pictus*

Order: *Gruiformes* (Cranes and Allies)

Family: *Rallidae* (Rails, Coots)

Virginia Rail	*Rallus limicola*
Sora	*Porzana carolina*
Common Moorhen	*Gallinula chloropus*
American Coot	*Fulica americana*

Family: *Gruidae* (Cranes)

Greater Sandhill Crane	*Grus canadansis tabida*

Order: *Charadriiformes* (Wading Birds)

Family: *Charadriidae* (Plovers)

Black-bellied Plover	*Pluvialis squatarola*
Snowy Plover	*Charadrius alexandrinus*
Semi-palmated Plover	*Charadrius semipalmatus*
Killdeer	*Charadrius vociferus*
Mountain Plover	*Charadrius montanus*

Family: *Recurvirostridae* (Avocets)

Black-necked Stilt	*Himantopus mexicanus*
American Avocet	*Recurvirostra americana*

Family: *Scolopacidae* (Sandpipers, Phalaropes)

Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Solitary Sandpiper	*Tringa solitaria*
Willet	*Catoptrophorus semipalmatus*
Spotted Sandpiper	*Actitus macularia*
Long-billed Curlew	*Numenius americanus*
Marbled Godwit	*Limosa fedoa*
Western Sandpiper	*Calidris mauri*
Least Sandpiper	*Calidris minutilla*
Baird's Sandpiper	*Calidris bairdii*
Long-billed Dowitcher	*Limnodromnus scolopaceus*
Wilson's Snipe	*Gallinago delicata*
Wilson's Phalarope	*Phalaropus tricolor*
Red-necked Phalarope	*Phalaropus lobatus*

Family: *Laridae* (Gulls, Terns)

Franklin's Gull	*Larus pipixcan*
Bonaparte's Gull	*Larus philadelphia*
Ring-billed Gull	*Larus delawarensis*
California Gull	*Larus californicus*
Herring Gull	*Larus argentatus*
Caspian Tern	*Sterna caspia*
Forster's Tern	*Sterna forsteri*
Black Tern	*Chlidonias niger*

Order: *Columbiformes* (Pigeons and Allies)

Family: *Columbidae* (Doves)

Rock Dove	*Columba livia*
White-winged Dove	*Zenaida asiatica*
Mourning Dove	*Zenaida macroura*
Eurasian Collared Dove	*Streptopelia decaocto*

Order: *Cuculiformes* (Cuckoos and Allies)

Family: *Cuculidae* (Cuckoos andRoadrunners)

Yellow-billed Cuckoo	*Coccyzus americanus*
Greater Roadrunner	*Geococcyx californianus*

Order: *Strigiformes* (Nocturnal Flesh Eaters)

Family: *Tytonidae* (Barn Owls)

Barn Owl	*Tyto alba*

Family: *Strigidae* (Owls)

Flammulated Owl	*Otus flammeolus*
Western Screech-Owl	*Megascops kennicottii*
Great Horned Owl	*Bubo virginianus*
Burrowing Owl	*Athene cunicularia*
Long-eared Owl	*Asio otus*
Short-eared Owl	*Asio flammeus*
Northern Saw-whet Owl	*Aegolius acadicus*
Northern Pygmy-Owl	*Glaucidium gnoma*

Order: *Caprimulgiformes* (Night Jars)

Family: *Caprimulgidae* (Goatsuckers)

Common Nighthawk	*Chordeiles minor*
Common Poorwill	*Phalaenoptilus nuttallii*

Order: *Apodiformes* (Small Fast Fliers)

Family: *Apodidae* (Swifts)

White-throated Swift	*Aeronautes saxatalis*

Family: *Trochilidae* (Hummingbirds)

Black-chinned Hummingbird	*Archilochus alexandri*
Calliope Hummingbird	*Stellula calliope*
Broad-tailed Hummingbird	*Selasphorus platycercus*
Rufous Hummingbird	*Selasphorus rufus*

Order: *Coraciiformes* (Cavity Nesters)

Family: *Alcedinidae* (Kingfishers)

Belted Kingfisher	*Ceryle alcyon*

Order: *Piciformes* (Cavity Builders)

Family: *Picidae* (Woodpeckers)

Lewis' Woodpecker	*Melanerpes lewis*
Williamson's Sapsucker	*Sphyrapicus thyroideus*
Red-naped Sapsucker	*Sphyrapicus nuchalis*
Downy Woodpecker	*Picoides pubescens*
Hairy Woodpecker	*Picoides villosus*
Three-toed Woodpecker	*Picoides tridactylus*
Northern Flicker	*Colaptes auratus*

Order: *Passeriformes* (Perching Birds)

Family: *Tyrannidae* (Flycatchers)

Olive-sided Flycatcher	*Contopus cooperi*
Western Wood-Pewee	*Contopus sordidulus*
Willow Flycatcher	*Epidonax traillii*
Hammond's Flycatcher	*Epidonax hammondii*
Gray Flycatcher	*Epidonax wrightii*
Dusky Flycatcher	*Epidonax oberholseri*
Cordilleran Flycatcher	*Epidonax occidentalis*
Black Phoebe	*Sayornis nigricans*
Say's Phoebe	*Sayornis saya*
Ash-throated Flycatcher	*Myiarchus cinerascens*
Western Kingbird	*Tyrannus verticalis*
Eastern Kingbird	*Tyrannus tyrannus*

Family: *Laniidae* (Shrikes)

Loggerhead Shrike	*Lanius ludovicianus*
Northern Shrike	*Lanius excubitor*

Family: *Vireonidae* (Vireos)

Plumbeous Vireo	*Vireo plumbeus*
Warbling Vireo	*Vireo gilvus*

Family: *Corvidae* (Jays)

Western Scrub-Jay	*Aphelocoma californica*
Pinyon Jay	*Gymnorhinus cyanocephalus*
Clark's Nutcracker	*Nucifraga columbiana*
Black-billed Magpie	*Pica pica*
American Crow	*Corvus brachyrhynchos*
Common Raven	*Corvus corax*

Family: *Alaudidae* (Larks)

Horned Lark	*Eremophila alpestris*

Family: *Hirundinidae* (Swallows)

Tree Swallow	*Tachycineta bicolor*
Violet-green Swallow	*Tachycineta thalassina*
Bank Swallow	*Riparia riparia*
N. Rough-winged Swallow	*Stelgidopteryx serripennis*
Cliff Swallow	*Petrochelidon pyrrhonota*
Barn Swallow	*Hirundo rustica*

Family: *Paridae* (Chickadees, Titmice)

Black-capped Chickadee	*Poecile atricapillus*
Mountain Chickadee	*Poecile gambeli*
Juniper Titmouse	*Baeolophus griseus*

Family: *Aegithalidae* (Bushtits)

Bushtit	*Psaltriparus minimus*

Family: *Sittidae* (Nuthatches)

Red-breasted Nuthatch	*Sitta canadensis*
White-breasted Nuthatch	*Sitta carolinensis*
Pygmy Nuthatch	*Sitta pygmaea*

Family: *Certhiidae* (Creepers)

Brown Creeper	*Certhia americana*

Family: *Troglodytidae* (Wrens)

Rock Wren	*Salpinctes obsoletus*
Canyon Wren	*Catherpes mexicanus*
Bewick's Wren	*Thyromanes bewickii*
House Wren	*Troglodytes aedon*
Winter Wren	*Troglodytes troglodytes*
Marsh Wren	*Cistothorus palustris*

Family: *Cinclidae* (Dippers)

American Dipper	*Cinclus mexicanus*

Family: *Regulidae* (Kinglets)

Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Redulus calendula*

Family: *Sylviidae* (Gnatcatchers)

Blue-gray Gnatcatcher	*Polioptila caerulea*

Family: *Turdidae* (Thrushes)

Western Bluebird	*Sialia mexicana*
Mountain Bluebird	*Sialia currucoides*
Townsend's Solitaire	*Myadestes townsendi*
Veery	*Catharus fuscescens*
Swainson's Thrush	*Catharus ustulatus*
Hermit Thrush	*Catharus guttatus*

Family: *Turdidae* (Thrushes) (continued)

American Robin	*Turdus migratorius*
Varied Thrush	*Ixoreus naevius*

Family: *Mimidae* (Thrashers, Mockingbirds)

Northern Mockingbird	*Mimus polyglottos*
Sage Thrasher	*Oreoscoptes montanus*

Family: *Sturnidae* (Starlings)

European Starling	*Sturnus vulgaris*

Family: *Motacillidae* (Pipits)

American Pipit	*Anthus rubescens*

Family: *Bombycillidae* (Waxwings)

Bohemian Waxwing	*Bombycilla garrulus*
Cedar Waxwing	*Bombycilla cedrorum*

Family: *Parulidae* (Wood-Warblers)

Orange-crowned Warbler	*Vermivora celata*
Nashville Warbler	*Vermivora ruficapilla*
Virginia's Warbler	*Vermivora virginae*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
Black-throated Gray Warbler	*Dendroica nigrescens*
Townsend's Warbler	*Dendroica townsendi*
MacGillivray's Warbler	*Oporornis tolmiei*
Common Yellowthroat	*Geothlypis trichas*
Wilson's Warbler	*Wilsonia pusilla*
Yellow-breasted Chat	*Icteria virens*

Family: *Thraupidae* (Tanagers)

Western Tanager	*Piranga ludoviciana*

Family: *Emberizidae* (Sparrows, Towhees, Juncos)

Green-tailed Towhee	*Pipilo chlorurus*
Spotted Towhee	*Pipilo maculatus*
American Tree Sparrow	*Spizella arborea*
Chipping Sparrow	*Spizella passerina*
Brewer's Sparrow	*Spizella breweri*
Vesper Sparrow	*Pooecetes gramineus*
Lark Sparrow	*Chondestes grammacus*
Black-throated Sparrow	*Amphispiza bileneata*
Sage Sparrow	*Amphispiza belli*
Savannah Sparrow	*Passerculus sandwichensis*
Grasshopper Sparrow	*Ammodramus bairdii*
Fox Sparrow	*Passerella iliaca schistacea*
Song Sparrow	*Melospiza melodia*
Lincoln's Sparrow	*Melospiza lincolnii*
White-throated Sparrow	*Zonotrichia albicollis*
Harris's Sparrow	*Zonotrichia querula*
Gambel'sWhite-crownedSparrow	*Zonotrichia leucophrys gambelii*
Mountain W-crowned Sparrow	*Zonotrichia leucophrys oriantha*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Dark-eyed Junco*(Oregon)*	*Junco hyemalis therburi*
Dark-eyed Junco(*Gray-headed*)	*Junco hyemalis caniceps*
Lapland Longspur	*Calcarius lapponicus*

Family: *Cardinalidae* (Grosbeaks, Buntings)

Rose-breasted Grosbeak	*Pheucticus ludovicianus*
Black-headed Grosbeak	*Pheucticus melanocephalus*
Blue Grosbeak	I*raca caerulea*
Lazuli Bunting	*Passerina amoena*
Indigo Bunting	*Passerina cyanea*

Family: *Icteridae* (Blackbirds, Orioles)

Bobolink	*Dolichonyx oryzivorus*
Red-winged Blackbird	*Agelaius phoeniceus*
Western Meadowlark	*Sturnella neglecta*
Yellow-headed Blackbird	*Xanthocephalus xanthocephalus*
Brewer's Blackbird	*Euphagus cyanocephalus*
Great-tailed Grackle	*Quiscalus mexicanus*
Brown-headed Cowbird	*Molothrus ater*

Family: *Icteridae* (Blackbirds, Orioles continued)

Bullock's Oriole	*Icterus bullockii*
Scott's Oriole	*Icterus parisorum*

Family: *Fringillidae* (Finches, Grosbeaks)

Gray-crowned Rosy-Finch	*Leucosticte tephrocotis*
Black Rosy-Finch	*Leucosticte atrata*
Pine Grosbeak	*Pinicola enucleator*
Purple Finch	*Carpodacus purpureus*
Cassin's Finch	*Carpodacus cassinii*
House Finch	*Carpodacus mexicanus*
Red Crossbill	*Loxia curvirostra*
Common Redpoll	*Carduelis flammea*
Pine Siskin	*Carduelis pinus*
Lesser Goldfinch	*Carduelis psaltria*
American Goldfinch	*Carduelis tristis*
Evening Grosbeak	*Coccothraustes vespertinus*

Family: *Passeridae* (Old World Sparrows)

House Sparrow	*Passer domesticus*

Mammals

Order: *Insectivora* (Insect Eaters)

Family: *Soricidae* (Shrews)

Merriam's Shrew	*Sorex meriammi*
Dusky Shrew	*Sorex monticolus*
Vagrant Shrew	*Sorex vagrans*
Water Shrew	*Sorex palustris*
Preble's Shrew	*Sorex preblei*

Order: *Chiroptera* (Bats)

Family: *Vespertilionidae* (Plainnose Bats)

California Myotis	*Myotis californicus*
Small-footed Myotis	*Myotis ciliolabrum*
Long-eared Myotis	*Myotis evotis*
Little Brown Bat	*Myotis lucifugus*
Fringed Myotis	*Myotis thysanodes*
Long-legged Myotis	*Myotis volans*
Yuma Myotis	*Myotis yumanensis*
Western Red Bat	*Lasiurus blossvellii*
Hoary Bat	*Lasiurus cinereus*
Silver-haired Bat	*Lasionycteris noctivagans*
Western Pipistrelle	*Pipistrellus hesperus*
Big Brown Bat	*Eptesicus fuscus*
Townsend's Big-eared Bat	*Corynorhinus townsendii*
Spotted Bat	*Euderma maculata*
Pallid Bat	*Antrozous pallidus*

Family: *Molossidae* (Freetail Bats)

Brazilian Free-tailed Bat	*Tadarida brasiliensis*

Order: *Lagomorpha* (Pikas, Hares, Rabbits)

Family: Ochotonidae (Pikas)

Pika	*Ochotona princeps*

Family: *Leporidae* (Hares, Rabbits)

White-tailed Jackrabbit	*Lepus townsendi*
Snowshoe Hare	*Lepus americanus*
Black-tailed Jackrabbit	*Lepus californicus*
Mountain Cottontail	*Sylvilagus nuttalli*
Pygmy Rabbit	*Brachylagus idahoensis*

Order: *Rodentia* (Rodents)

Family: *Sciuridae* (Squirrels)

Least Chipmunk	*Tamias minimus*
Cliff Chipmunk	*Tamias dorsalis*
Uinta Chipmunk	*Tamias umbrinus*
Yellow-bellied Marmot	*Marmota flaviventris*
White-tailed Antelope Squirrel	*Ammospermophilus leucurus*
Townsend Ground Squirrel	*Spermophilus townsendii*
Belding Ground Squirrel	*Spermophilus beldingi*

Family: *Geomyidae* (Gophers)

Botta's Pocket Gopher	*Thomomys bottae*
Northern Pocket Gopher	*Thomomys talpoides*
Southern Pocket Gopher	*Thomomys umbrinus*

Family: *Heteromyidae* (Kangaroo Rodents)

Little Pocket Mouse	*Perognathus longimembris*
Great Basin Pocket Mouse	*Perognathus parvus*
Dark Kangaroo Mouse	*Microdipodops megacephalus*
Ord Kangaroo Rat	*Dipodomys ordii*
Chisel-toothed Kangaroo Rat	*Dipodomys microps*

Family: *Castoridae* (Beavers)

Beaver	*Castor canadensis*

Family: *Cricetidae* (Mice, Rats, Voles)

Western Harvest Mouse	*Reithrodontomys megalotis*
Canyon Mouse	*Peromyscus crinitus*
Deer Mouse	*Peromyscus maniculatus*
Pinion Mouse	*Peromyscus truei*
Northern Grasshopper Mouse	*Onychomys leucogaster*
Desert Woodrat	*Neotoma lepida*
Bushy-tailed Woodrat	*Neotoma cinerea*
Mountain Vole	*Microtus montanus*
Long-tailed Vole	*Microtus longicaudus*
Sagebrush Vole	*Lemmiscus curtatus*
Muskrat	*Ondatra zibethica*

Family: *Zapodidae* (Jumping Mice)

Western Jumping Mouse	*Zapus princeps*

Family: *Erethizontidae* (New World Porcupines)

Porcupine	*Erethizon dorsatum*

Order: *Carnivora* (Flesh-Eaters)

Family: *Canidae* (Dogs, Wolves, Foxes)

Coyote	*Canis latrans*
Gray Wolf	*Canis lupus* (*locally extirpated*)
Gray Fox	*Urocyon cinereoargenteus*
Kit Fox	*Vulpes macrotus*
Red Fox	*Vulpes vulpes*

Family: *Procyonidae* (Racoons and Allies)

Raccoon	*Procyon lotor*

Family: *Mustelidae* (Weasels and Allies)

Short-tailed Weasel	*Mustela erminae*
Long-tailed Weasel	*Mustela frenata*

Family: *Mustelidae* (Weasels and Allies) (cont.)

Mink	*Mustela vison*
American Marten	*Martes americana (l. extirpated)*
Wolverine	*Gulo gulo (locally extirpated)*
River Otter	*Lutra canadensis*
American Badger	*Taxidea taxus*
Striped Skunk	*Mephitis mephitis*
Western Spotted Skunk	*Spilogale gracilis*

Family: *Felidae* (Cats)

Mountain Lion	*Felix concolor*
Lynx	*Lynx lynx (locally extirpated)*
Bobcat	*Lynx rufus*

Order: *Artiodactyla* (Hoofed Mammals)

Family: *Cervidae* (Deer)

Rocky Mountain Elk	*Cervus canadensis*
Mule Deer	*Odocoileus hemionus*

Family: *Antilocapridae* (Pronghorn)

Pronghorn	*Antilocapra americana*

Family: *Bovidae* (Bison, Sheep, Goats)

Bison	*Bison bison (locally extirpated)*
Mountain Goat	*Oreamnos americanus*
Bighorn Sheep	*Ovis canadensis*

Reptiles

Order: *Squamata* (Lizards, Snakes)

Family: *Iguanidae* (Iguanas and Allies)

Western Fence Lizard	*Sceloporus occidentalis*
Sagebrush Lizard	*Sceloporus graciosus*
Side-blotched Lizard	*Uta stansburiana*
Pigmy Short-horned Lizard	*Phrynosoma douglassii*
Greater Short-horned Lizard	*Phrynosoma hernadesi*
Desert Horned Lizard	*Phrynosoma platyrhinos*

Family: *Scincidae* (Skinks)

Western Skink	*Eumeces skiltonianus*

Family: *Teiidae* (Whiptails)

Western Whiptail	*Cnemidophorus tigrus*

Family: *Boidae* (Boas, Pythons)

Rubber Boa	*Charina bottae*

Family: *Colubridae* (Solid-toothed Snakes)

Ringneck Snake	*Diadophis punctatus*
Striped Whipsnake	*Masticophis taeniatus*
Great Basin Gopher Snake	*Pituophis cantenifer deserticola*
Common Kingsnake	*Lampropeltis getulus*
Sonoran Mountain Kingsnake	*Lampropeltis pyromelana*
Long-nosed Snake	*Rhinocheilus lecontei*
Western Terrestrial Garter	*Thamnophis elegans*
Ground Snake	*Sonora semiannulata*
Night Snake	*Hypsiglena torquata*

Family: *Viperidae* (Vipers)

Great Basin Rattlesnake	*Crotalus viridis lutosus*

Amphibians

Order: *Anura* (Frogs and Toads)

Family: *Pelobatidae* (Spadefoots)

Great Basin Spadefoot Toad	*Scaphiopus intermontanus*

Family: *Ranidae* (True Frogs)

Columbia Spotted Frog	*Rana luteiventris*
Northern Leopard Frog	*Rana pipiens*
Bullfrog	*Rana catesbeiana*

Family: *Bufonidae* (Toads)

Western Toad	*Bufo boreas*

Family: *Hylidae* (Treefrogs)

Pacific Treefrog	*Hyla regilla*

Note: This list is a combination of wildlife sight record data and our best effort to predict what wildlife species live in this area in all seasons and under optimum habitat conditions.

*With the exception of the European Starling, House Sparrow, Eurasian Collared Dove, and Rock Dove, all birds are protected in Nevada by either the International Migratory Bird Treaty Act or as game species. Several mammal and one amphibian species are also protected as game species.

Updated: 4/2005 - Peter V. Bradley - Nevada Department of Wildlife - Elko, Nevada.

Table 17. Priority[1] and Indicator[2] bird species likely to occur within the Morgan Hill Allotment and their associated habitats (GBBO 2010).

Sagebrush	**Springs**
Priority: Greater Sage-Grouse* Swainson's Hawk* Ferruginous Hawk* Golden Eagle* Prairie Falcon Burrowing Owl* Common Poorwill Gray Flycatcher Sage Thrasher* Brewer's Sparrow* Sagebrush Sparrow *Indicator*: None	*Priority*: Calliope Hummingbird Rufous Hummingbird (Greater Sage-Grouse) (Northern Goshawk) *Indicator*: Yellow Warbler

[1]Species that use the habitat type to a significant degree. Species at the bottom on the list may be listed in parentheses, which indicate that the bird uses the habit occasionally, seasonally, or opportunistically, but is not primarily dependent upon it (GBBO 2010).

[2]Species that are not Priority species in the Nevada Comprehensive Bird Conservation Plan, but can provide an index of habitat integrity based on their presence or abundance. Indicator species are listed if: 1) Priority species are rare or infrequent enough that they cannot be relied upon as a gauge of habitat integrity, or 2) Priority species only encompass certain aspects of habitat integrity. **Indicator species should primarily be used for monitoring the effectiveness of conservation implementation**. Indicator species are expected to respond positively and relatively quickly to substantive habitat improvements (GBBO 2010).
*Also BLM Sensitive Species.

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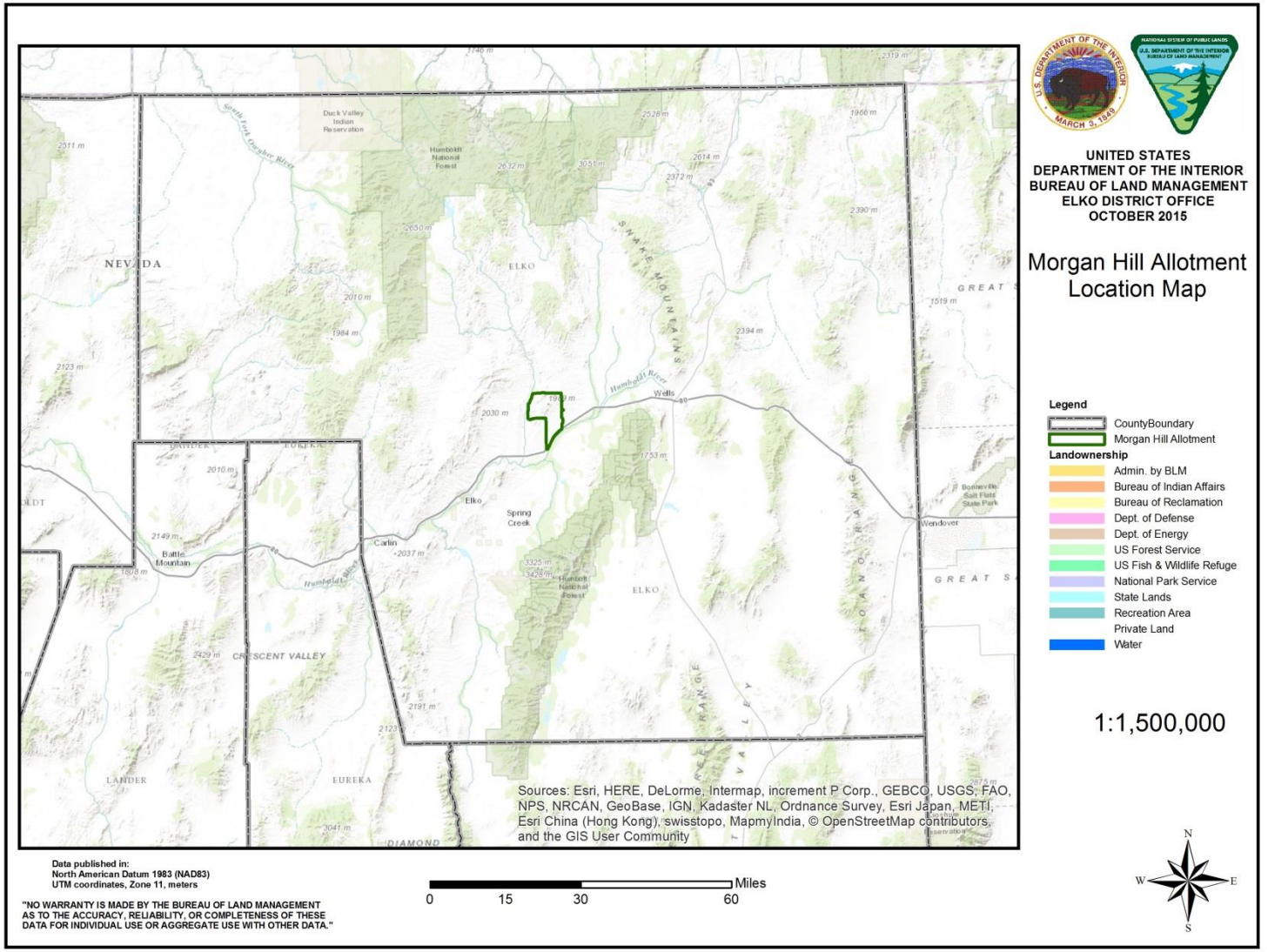
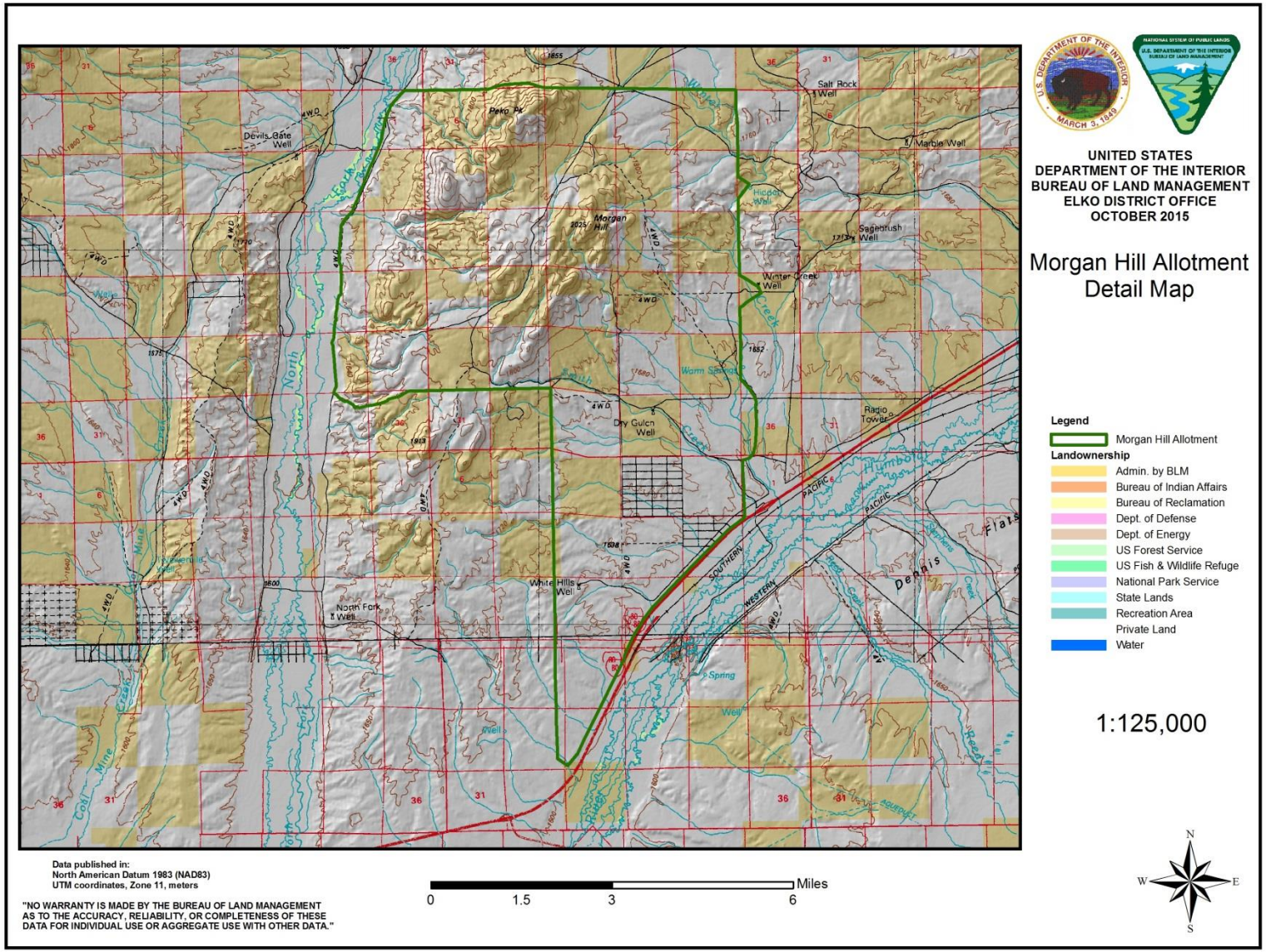
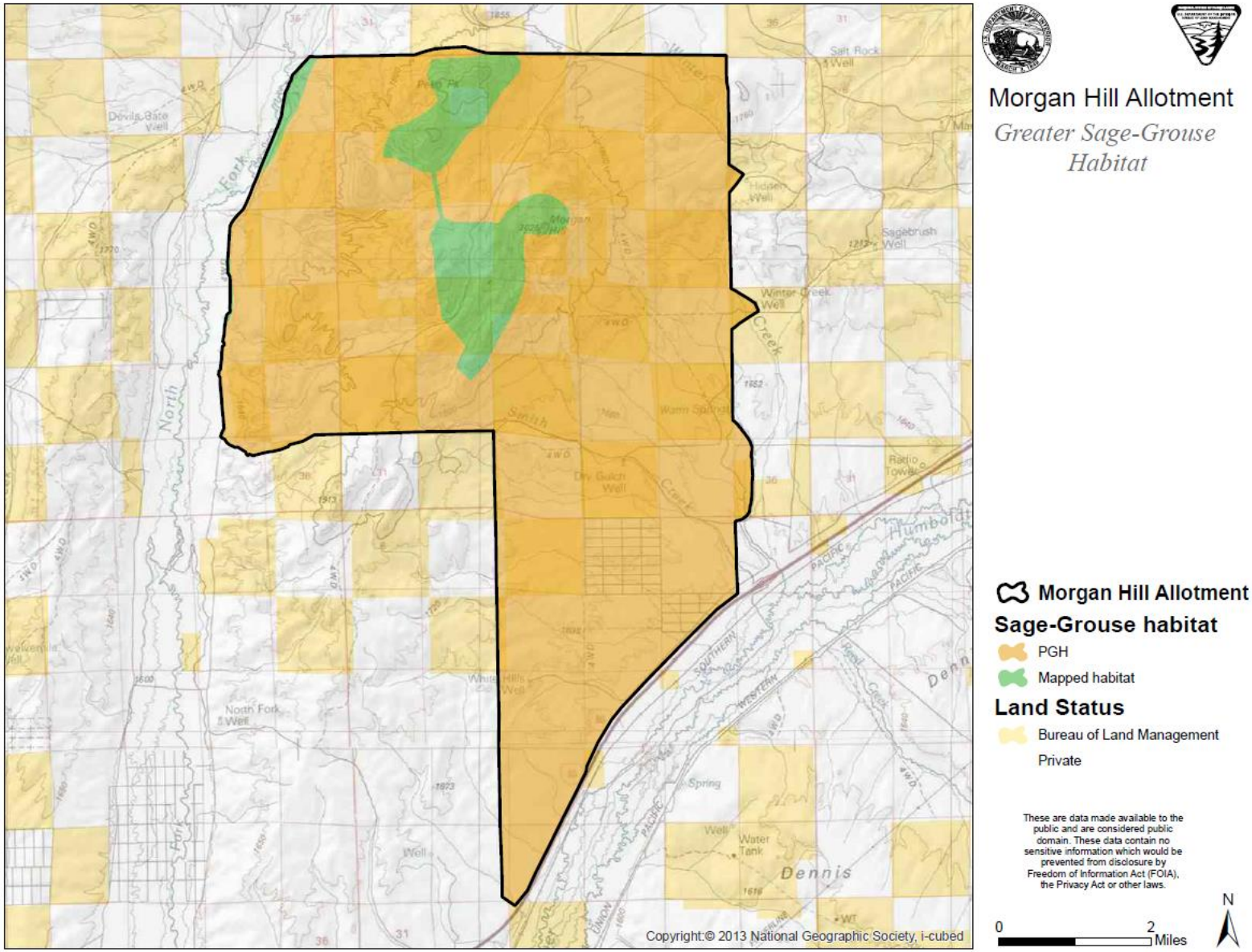
Maps



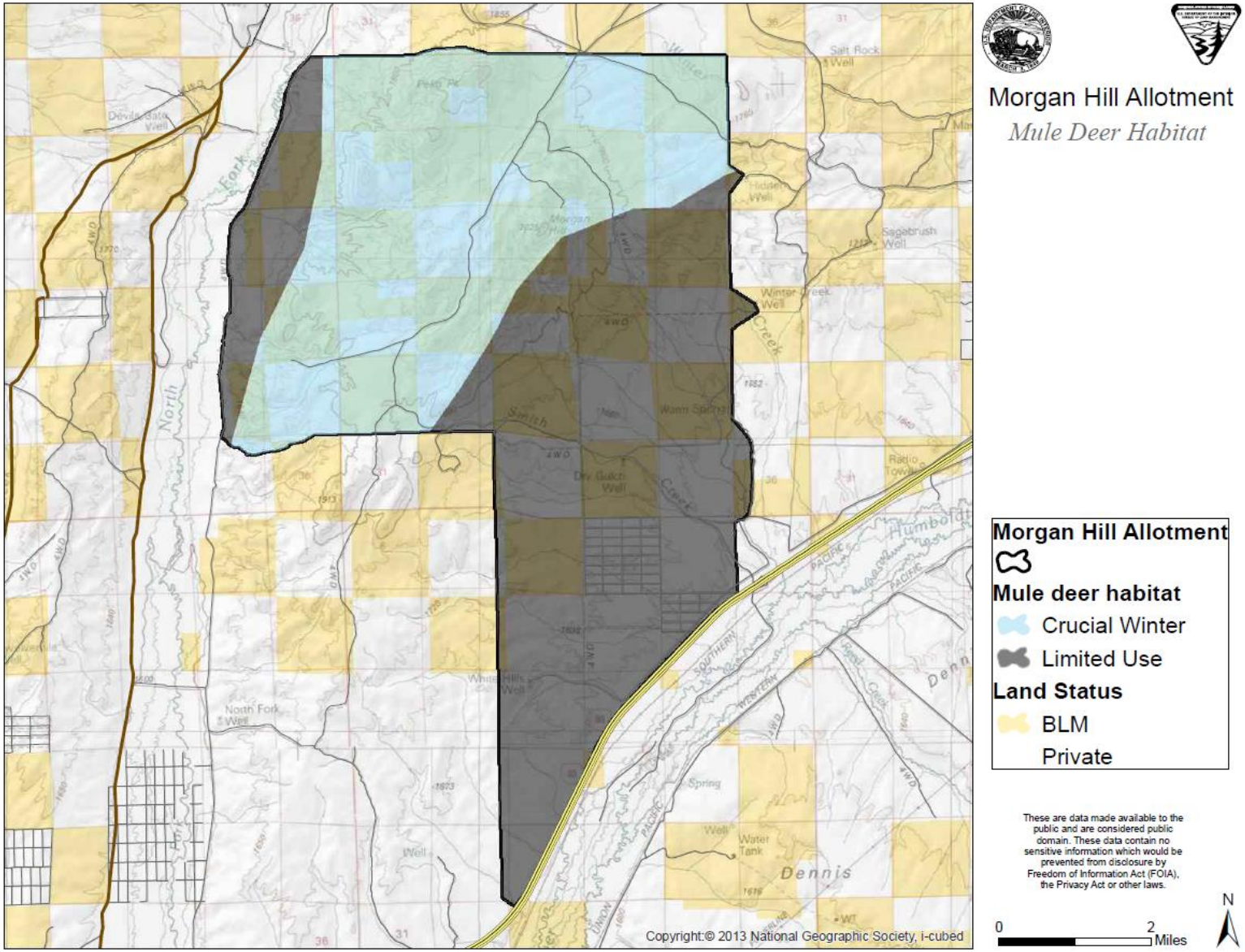
Map 1: Morgan Hill Allotment Location



Map 2: Morgan Hill Allotment Detail Map



Map 3: Morgan Hill Allotment Greater Sage-Grouse Habitat



Map 4: Morgan Hill Allotment Mule Deer Habitat